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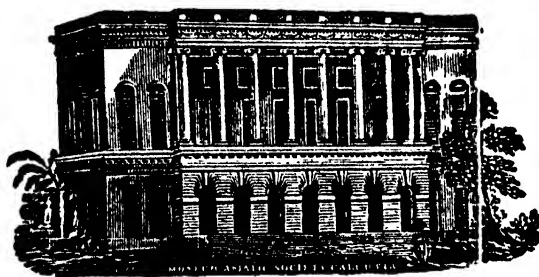
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JOURNAL
OF THE
ASIATIC SOCIETY OF BENGAL,

Vol. LXXII, Part III. No. 2.—1903.

EDITED BY

THE ANTHROPOLOGICAL SECRETARY.



"The bounds of its investigation will be the geographical limits of Asia: and within these limits its inquiries will be extended to whatever is performed by man or produced by nature."—SIR WILLIAM JONES.

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Vol. LXXII. Part III.—ANTHROPOLOGY AND
COGNATE SUBJECTS.

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CONTENTS.

	<i>Page</i>
<i>Exorcism of wild animals in the Sundarbans.—By D. SUNDER. Com- missioner in the Sundarbans</i>	45
<i>Note about certain sections of the Kakars living in the Zhob District of Baluchistan. Collected by RAI SAHIB DIWAN JAMIAT RAI, Special Assistant to the Superintendent, Imperial Gazetteer, Balu- chistan</i>	53
<i>Note on the Faqirs of Baliya-Dighi in Dinajpur.—By MAULAVI ABDUL WALI</i>	61
<i>Notes on the Hindus in the Nushki Tahsil of the Chagāi Agency in Baluchistan.—By R. S. DIWAN JAMIAT RAI, Special Assistant to the Superintendent, Imperial Gazetteer, Baluchistan</i> ...	66
<i>Notes about the Wanechis (Spin Turin Afghāns) of the Shahrig Thasil, Thal-Chotiali, Baluchistan.—By RAI SAHIB JAMIAT RAI, Special Assistant to the Superintendent, Imperial Gazetteer, Baluchistan.</i>	72
<i>Note on the Grām Devati or tutelary village deity of Orissa.—By BABU JAMINI MOHAN DAS, Deputy Magistrate, Cuttack</i> ...	81
<i>Supplement</i>	86

NOTICE.

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Vol. LXXII. Part III.—ANTHROPOLOGY AND
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No. 2.—1903.  
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Exorcism of wild animals in the Sundarbans.—By D. SUNDER, Esq., Com-
missioner in the Sundarbans.

[Read 3rd June, 1903.]

The belief that charms and exorcism are efficacious for the disper-
sion or destruction of noxious animals has prevailed from a remote
period, and it still exists in India. In the middle ages, history makes
frequent mention of the calamities caused in England and other places
by plagues of insects. Few remedies for preventing or mitigating the
ravages were known, and recourse was consequently had to the clergy,
who heard the complainants, interposed on their behalf with prayers, and
declared these scourges of mankind to be the work of the devil.

Between the months of October and May crowds of wood-cutters
come in boats from Barisal, Khulna, Faridpur, Calcutta, and other dis-
tricts, and enter the forests of the Sundarbans for the purpose of cut-
ting timber. These forests are full of man-eating tigers, and the loss
of life that annually occurs from their attacks is so heavy that nothing
will persuade wood-cutters to proceed to the jungles without their *fugir*.
He is the one person who is believed to possess power to drive away

tigers and prevent them from attacking human beings. The belief in the power of the *faqir* is so great that wood-cutters and others declare that even crocodiles, which also cause great loss of life and are frequently met with in the jungles, are under his control. It is said that he can make these great saurians rise or sink in water by his charms, and by his exorcism close their mouths and prevent them from doing any harm.

No work is begun in the forests by wood-cutters until the *faqir* has gone through his charms and incantations, and has performed his *pujās* for the dispersion of all noxious animals.

For this purpose he has to be provided with a black kid and the following articles :—5 seers of *bātāsās* (sweetmeat), $2\frac{1}{2}$ seers of sugar, 40 plantains, 10 cucumbers, 7 musk melons, 2 cocoanuts, 5 seers of *ātap* rice, 5 yards of white cloth for a *dhoti*, 2 yards of red cloth for flags and wicks, 2 packets of vermilion, $\frac{1}{4}$ seer of incense, an earthen plate for burning incense, 2 earthen water-pots, 7 *chirāghs* (earthen lamps), 7 earthen pots for water for the deities, and 11 poles for flags. With these articles the *faqir* and wood-cutters proceed to the block of land selected for the wood-cutting operations. On arrival the *faqir* repeats a charm for the safety of the boat. Translated, it is as follows :—

“O Kālī, thou knot on the head of *Çivā*; thy name is a sufficient charm over this place, and by it I have made the place as secure as a fort. Keep tigers away. Let them not come anywhere near us. If tigers break into this place and cause any injury, may you, O Kālī, eat the head of *Kāmākhyā* of *Kāmarupa*.

Having said this, the *faqir* and his companions go ashore and select a piece of ground on which to propitiate the deities. The jungle is cleared, and the *faqir* makes a circle on the ground with his right foot and then repeats the incantations, of which a translation is given below :—

(1) “I have made a circle on this ground and it is now like a hive: 13,000 evil spirits and *Dāno*, *Dudh*, *Deo*, and *Pori* must keep out of my circle. O tiger, if you injure my enclosure, may you eat the head of *Kāmākhyā* of *Kāmarupa*.

(2) “The clouds in the heavens and the circle of the world are my boundaries. Eighty thousand evil spirits, tigers, and pigs must keep off this boundary. If they dare to put their shoulders within it, may they drink the blood of the goddess.

(3) “I adore thee, O Kālī! Darkness, thou art the hairs of *Çiva*. I am thy son. I make a circle round the whole world in thy name. I pray thee that thou surround me and all my men with thy darkness and protect us from tigers.

(4) “*Rāma*’s bow is on the other bank of the river and his cottage is on this bank. I make a circle and have taken in the whole world. If this my charm be without effect, may *Mahādeva* lose his head.”

The four words *Dāno*, *Dudh*, *Deo*, and *Pori* mentioned in the first of the above charms are names for the devil.

After this the *faqir* builds in his circle seven small huts made of stakes and leaves. Beginning from the right, the first hut is given to Jagabandhu and the second to Mahādeva. Four flags hang over them, one on each side, and a *chirāgh* is kept burning in front of an offering of *bātāsās*, rice, plantains, etc., which is made to the deities. The third house is assigned to Manasā and the same offering is made to her; but a pot of water, with mango leaves over it, is also given to her. A figure of a deity is made with vermilion on the pot. *Next to the third hut a small platform is erected in honour of Rupapori, and an offering of plantains, rice, cocoanut, etc., is made on it on a plantain leaf. Next to the platform is a hut for Kālī-māyā and Kālī. The hut is divided into two compartments, in each of which a pot of water, covered with mango leaves and anointed with vermilion, is placed. A picture of a deity holding a stick in the right hand is made with vermilion on the pot which is on Kālī-māyā's side of the hut. The offerings to these deities are the same as those made to Mahādeva; but a larger quantity of *bātāsās* is given to Kālī. A flag hangs on each side of the hut, and a *chirāgh* is kept burning in each compartment. The next is a small platform similar to the one of Rupapori. Offerings of rice, plantains, cocoanut, sugar, etc., are made on it to Orpori. After this is a hut with two compartments, one being for Kāmesvari and the other for Burhī Thākuraṇī. A pot of water covered with mango leaves is kept in each compartment, and each pot has a picture of a deity on it, made with vermilion. The offerings are the same as those made to Manasā and Mahādeva. The next is a tree, the trunk of which is smeared with vermilion. It is called Rakṣyā Chaṇḍī. No offerings are made to it. Then come two more huts, with two compartments in each and flags flying over them. The first hut is given for the Ghāzi Sāhib and his brother Kalu, and the next is given for Chawal Pir and Ran Ghāzi. Chawal Pir is said to have been the son of Ghāzi Sāhib, and Ran Ghāzi is alleged to have been Ghāzi's nephew. Five balls of earth are placed in each compartment, and an offering of sugar, *bātāsās*, and cocoanut is made to these saints. A *chirāgh* is kept burning in front of the offering inside each compartment. The last deity propitiated is Bāstu Devatā (the earth). The offerings are the same as those made to Jagabandhu, but they are kept on the open ground on plantain leaf. There is no hut or platform.

When everything is ready and the offerings have been arranged, the *faqir* retires to purify himself. He has a bath, and returns wearing the *dhoti* provided for him by the wood-cutters, and having his hands, arms, and forehead anointed with vermilion. He then, with hands folded before his face, goes on his knees and bows his head to the ground, and

remains in this attitude for a few seconds before each of the deities in turn. His prayers to each of them may be translated thus :—

"Jagabandhu (Friend of the World),—I pray to thee. Shield thou me and keep me under thy care."

"Mahādeva (the Destroyer),—Take me in thy lap and cover thou me. Keep the tigers of the jungles far off."

"Manasā (Goddess of Serpents),—Hear my prayer. Keep all serpents and other noxious things very distant."

"Rupapori (a spirit of the jungles),—I beseech thee to hear me. Keep thy eyes on my companions. Let none of them be injured."

"Kālī-māyā (said to be the daughter of Kālī),—O my mother; look thou on me in mercy. Keep far away all injurious things, tigers and bears, from this place."

"Kālī,—O Kālī of this world! all things are visible to thee. Have mercy upon us. Hear my cry, and let nothing do us any harm."

"Orpori (a jungle spirit having wings),—Thou who livest in the air and dost, fly about, thou also art a tiger of the jungle. I beg at thy feet. Do us no harm."

"Burhi Thākuraṇī (wife of Dakṣa Rājū, the father of Durgā),—I am at thy feet praying and pleading. Injure me not."

"Rakṣyā Chaṇḍī (another name for Kālī),—I pray thee, preserve my life."

"Ghāzi Sāhib,—Thou hast become a *faqir*. As a *faqir* I fall at thy feet and plead. Thou hast come to these jungles with 300 tigers. I beg thee to shut the mouths of the tigers."

"Kalu,—Thou art brother of Ghāzi, and I salute thee in his name, and ask for thy help. If thou shouldst injure me after this salutation, thou shalt die and burn in hell."

"Chawal Pir,—I pray thee to look upon me as thy son. Be a father to me and protect me from all danger and injury."

"Ran Ghāzi,—Thou who hast power over them, and dost ride about on them I pray thee that thou drive out from these jungles all tigers and bears."

"Bāstu Devatā,—Thou dost remain on this earth, and all things are under thy control. I pray to thee that thou keep everything peaceful. Let no injury come on us, else thou wilt offend all the other deities."

These prayers have to be offered and the deities propitiated every seven days, while wood-cutting is going on.

Ghāzi Sāhib and his brother Kalu are said to have been Muhammadan *pīrs* or saints. They are alleged to have had complete power over all living things. It is believed that they possessed the power of bringing to pass whatever they desired, and that tigers would come to them or disperse at their command; also that they used to ride about the jungles on tigers. They are venerated by all Muhammadans and Hindus of these parts, and whenever any person desires to enter any jungle, he first bends to the ground, with hands folded before his face, and says :

"In the name of Ghāzi Sāhib." Having done this, he goes into the jungle, believing that Ghāzi Sāhib will keep him perfectly safe.

Faqirs and others are unable to say who Ghāzi Sāhib was, and there is nothing in writing about him. In paragraph 524 of his report on the Bengal Census of 1901, Mr. Gait writes as follows :—

"'Zindāh Ghāzi,' from Zindik-i-Ghāzi, 'conqueror of infidels,' rides on a tiger in the Sundarbans, and is the patron saint of wood-cutters, whom he is supposed to protect from tigers and crocodiles.* He is sometimes identified with Ghāzi Miyan and sometimes with Ghāzi Madar. One Muhammadan gentleman tells me he is Badiruddin Shāh Madar, who died in A.H. 840 fighting against the infidels. Songs are sung in his honour and offerings are made after a safe return from a journey. Hindu women often make vows to have songs sung to him if their children reach a certain age. His shrine is believed to be on a mountain called Madaria in the Himālayas."

After finishing his prayers to the several deities, the *faqir* proceeds to ascertain whether a tiger is present in the locality or not, and he addresses it as follows :—

"O tiger and tigress ! if thou be on my right, roar on the right : if thou be on the left, roar on the left."

Having said this, the *faqir* blows over his left arm. He then spans the arm from elbow to any finger of the hand. If the span meets the end of any finger exactly, the *faqir* waits a few minutes and spans a second time. If the span fails to meet the same finger exactly, it is a sign that a tiger is present, and the *faqir* then has to drive it off. He is said to be able to do this by repeating an incantation, a translation of which is given below :—

"In the name of my brothers Hingli, Bingli, and Mangalā, and the horses of Ghāzi Sāhib, also in the name of Barkat (God). O mother Kāmeçvarī, thou art uppermost in my mind. I have put Azrael the Rider on the backs of the tigers and tigresses of this jungle. Go eastward, thou of colour of fire; go eastward or westward, go to the right-about, I command thee, and feed thyself by killing deer and pig. If this my charm fails, may the top-knot of Mahādeva fall at the feet of Kālī."

The above charm is not much unlike an old Scotch rhyme which runs thus :—

"Ratton and mouse,
Lea' the puir woman's house :
Gang awa' owre by to the mill,
And there ye'll a' get yer fill."

It was believed in Scotland that, if the above rhyme was put on paper and pasted against the wall of a house troubled with rats, these vermin would immediately disappear.

Hingli, Bingli, and Mangalā, mentioned in the *faqir's* charm for driving away a tiger, are said to be deities of the jungles and the fathers of tigers. Azreal the rider is alleged to be a spirit who is always on the backs of tigers.

The *faqir* then repeats charms for the protection of the wood-cutters and himself. Translated, they run thus :—

"In the name of Jaya Durgā and Īiva, I put this guard over my body [here he blows over the right and then the left side of his chest]. O tiger and tigress! I warn thee that thou leave this place.

"The name of my father and mother is *Amara* (immortal) and that of my companions is *Akṣaya* (indestructible), and my name is also the same. O tiger and tigress! if thou injure any of my men, thou wilt drink the blood of thy mother and brother.

"O Muni! I am filled with thee! O Bhagavatī! do not fail to aid me, or you will put your foot on the head of Īiva and will eat the heads of Gaṇeṣa and Kārtika."

After this the eyes of the tiger have to be closed, and the *faqir* repeats an incantation to effect this. Translated, it reads as follows :—

"Dust! dust! The finest dust be on thy eyes, O tiger and tigress! I lifted it with my feet and rubbed it on my body. Thou canst not see me now. O mother Nidrāpati! grant my prayer and put sleep into the eyes of the tigers. Kālī is on my right, and Dadh (the devil) is on my left. O Nidrāpati! hear me, I pray thee! I stand here a child of Kālī. Be thou watchful over me."

If a tiger is believed to be in the vicinity of the wood-cutters, the *faqir* repeats the following charm to drive it away :—

"On the north is a stone, the hut of Rāma, and with it I have stopped the shedding of blood. If this my charm fails, Mahādeva shall know how the tigers and tigresses were born. If this my charm be without effect, may the head-knot of Mahādeva fall at Bhagavatī's feet. In the name of Kāmeṣwari I command thee. O tiger and tigress! to either come forward or vanish."

If the growl of a tiger be heard anywhere near the place where the wood-cutting is going on, the *faqir* repeats an incantation to banish it, which may be translated thus :—

"God is here and God is everywhere. Tiger and tigress! do thou begone! Hark! their roaring has ceased, and they have fled with five spirits mounted on them. In the name of God I have tied the mouths of the tiger and tigress."

If a tiger be seen in the jungle prowling anywhere near the wood-cutters, the *faqir* has to turn towards it at once and shew it the palm of his left hand and to exorcise thus :—

"O thou of fiery eyes! thou art furious for a drop of blood. I command thee that thou stand where thou art: stand, or turn back, thou bastard! I warn thee to retire, else thou shalt die!"

This resembles a charm which was formerly used in Normandy, where, during the eight days before Christmas, the people in some of the cantons placed bundles of hay under the fruit trees, and children under 12 years of age were sent with torches to set fire to the hay, which they did, crying out:—

“ Mice, caterpillars, and moles,
Get out, get out of my field ! •
I will burn your beard and bones,
Trees and shrubs :
Give me three bushels of apples.”

So much for the *faqir* and his exorcisms. He believes in prayer and pleads before his gods. Whether his prayers and intercessions are sincere or not, is a matter on which we should express no opinion ; rather let us respect him for what he does, even if his methods do not fit in with our own ideas. That he is thoroughly believed in by wood-cutters there is no doubt, and it is equally certain that his charms and exorcism give them courage to enter the forests and embolden them to work there, notwithstanding the many dangers by which they are surrounded. Without him they would be utterly helpless. That his incantations have little effect has been proved, for it often happens that the *faqir* himself, instead of the wood-cutters, is carried off by the tiger. This occurred in the cases of two of them, within my knowledge, during the present season, in the Barisal tract of the Sundarbans, where tigers have increased considerably and have caused great loss of life since the people were prohibited from keeping guns. But the people and wood-cutters allege that the two *faqirs* were carried off because the propitiation of the deities of the jungles where the *faqirs* lost their lives had been neglected a long time, and that the tigers there are consequently very angry.

• Some superstitious beliefs about the “ King of the Indian Forests,” prevailing among the people who frequent the Sundarbans, may be mentioned here.

In other parts of Bengal the word “*çiāl*” means jackal ; in the Sundarbans it means tiger.

There is a superstition that the tongue of a tiger is a sure remedy for enlarged spleen. It may be taken in two ways. A small piece should be cut and put within the upper part of a ripe plantain, and the patient should bite that part of the plantain and swallow it the first thing in the morning, for five consecutive days. Another way is to grind a bit of the tongue with a peppercorn into a paste, mix it with a little *hukkah* water, and drink it every morning for seven days.

The whiskers of a tiger are considered to be a cure for foot-and-mouth disease of cattle. If a few of the hairs be tied in a piece of cloth to a leg of the animal; it is believed that all vermin on it will instantly drop off.

The fat of a tiger is much sought after and is believed to be an infallible remedy for rheumatism. It should be rubbed over the affected parts of the body night and morning.

The skin of a tiger is considered to be a cure for ophthalmia. It should be burnt and ground into a paste with *lukkak* water and applied all round the affected eye.

Tiger-claws are often worn by men and women as a charm against attacks from tigers. Children sometimes wear tiger-claws mounted on silver as a charm against the evil eye.

When a tiger carries off a *mānjhi* of a boat, the helm used by him is removed from the boat and planted with the blade upwards on the spot where the man was killed, and a piece of white cloth, with some rice tied in a corner of it, is attached to the helm. When a boatman is killed by a tiger, his oar is planted, blade upwards, on the place where he was attacked, and a white flag, with some rice tied in a corner of it, is fixed to the oar. If any person attempt to remove either the helm or the oar and fail to draw it out of the ground by a single pull, it is believed that he will be killed by a tiger; but nobody ever interferes with these simple memorials to the dead, which are to be seen on the banks of streams and in the jungles throughout the Sundarbans.

Note about certain sections of the Kakars living in the Zhob District of Baluchistan. Collected by RAI SAHIB DIWAN JAMIAT RAI, Special Assistant to the Superintendent, Imperial Gazetteer, Baluchistan.*

[Read 3rd June, 1903.]

Mehtarzais and Sargarās.

I obtained the following information, about the Mehtarzai and Sargarā sections which seems to be of ethnographical interest, from :—

1. *Mullu* Gulzār, son of Faizullah, Lālāzai Mehtarzai of Taleri, 'Alozai, age about 60 years.

2. Utman, son of Shah Husain, Sargarā, of Hindubāgh.

The *Mulla* said it is the command of the *shari'at* (Muhammadan law) that a man is by nature stronger than a woman and hence the birth of a son is the occasion of rejoicings and that of a girl is not, though the latter has a considerable market value.

Customs at birth.—When a son is born, sweets are distributed among relations and friends. In pre-British days *Shināi* (Pistachia *Khanjak*) took the place of sweets. People who come to offer their congratulations, do not come empty handed but bring some sweets with them. This is called *Peshkash* (literally a present). The sweets distributed by the parents of the boy are called *Khucanai* (sweet). On the third day, one or more sheep, according to the means of the parents, are killed, and boiled and the boiled meat is distributed. This is called *Khushai* (rejoicings). The same day, if a *Mullā* is at hand, he breathes the *Azān* (the call to prayer) in the ears of the newborn child, pronounces the *Kalimā* (the orthodox Muhammadan formula in pronouncing the names of god) and gives it a name. If a *Mullā* is not at hand, this ceremony is performed by the father of the child. In the case of girls, no ceremony is performed, and the name is given by the parents. On the day a son is born, guns are fired, as a token of rejoicing, from the top of the parent's house and one of the women of the household comes and proclaims in the village that a son has been born to the happy parents. On the third day the men and women dance in separate groups and sing. [Arrangements are being made to obtain the songs sung on the occasion.]

A woman after child-birth, is considered unclean for forty days,

* For some account of this tribe of Afghans, see Baluchistan Census Report for 1901, by R. Hughes-Buller, Esq., C.S.

and during this period she should not be visited by her husband. No purification ceremony is necessary. A woman after child-birth is called *Lan-gā* (Persian *Zachā*), and the child until it is weaned is called *Kuchnote* (Persian *Shir Khār*). For forty days the child is wrapt up in a piece of cloth, the head and neck being left bare, and is tied over with a thin cord. No opening is left for the water, &c. This cloth is untied every-day and cleaned, and wrapped round again. The cloth is called *wanri* and the rope with which it is tied is called *Sanzali*. In case of a son, after forty days, the parents of the mother present a shirt, which is given to the child. This shirt must be coloured, not white. The father of the child in return gives a *chadar* (long cloth worn over the head) to the female relations who have presented the shirt.

On the day of birth congratulations are offered by females to the mother and by males to the father. Near female relations also offer congratulations to the father.

Professional *dāis* (midwives) are unknown in this part of the country. Old and experienced women help at child-birth. The *langā* is given *ōgrā* (a porridge made of crushed wheat) for ten to fifteen days, with which are mixed *gur* (molasses) and *ghī* (clarified butter). The last named articles are sometimes given separately. Dry bread is not given as it is considered to lessen the mother's milk.

Trousers (*partūk*) are given to boys when they are eight to twelve years old and they are then called *Palast* (grown up). *Kākurs* generally count their age from the date on which they begin to wear *partūk*. Circumcision (*khatnā*) is generally performed a few days before the *partūk* is first worn. The circumcision of girls is not known in this part of the country. On the day, the *partūk* (trousers) is given to a boy, friends and relations assemble and *sanjad* (Eleagnus) or *gur* (molasses) is distributed. Some well-to-do people kill a sheep. Dancing (*atanr*) also takes place this day. Every village has a *Mullā* or other expert to perform circumcision. The ceremony is generally performed a few days before the Muhammadan festival of the *I'd*. The apparatus used is a piece of tender bone of sheep or goat (called *walai*) in which a round hole is made. The end of the generative organ is passed through this hole, and the foreskin which covers the gland (*hashfāh*) is then cut off with a razor (the *Sar Chara*), so as to uncover the gland. A small cloth bag is then made and filled with ashes and the wounded part is placed in the bag in order to heal the wound. This bag is called *Kosōrai*. A thread is passed through the ends of the bag and tied round the waist. The wound heals in about a week. Among the *Kākars*, a boy cannot lawfully kill a sheep or goat until he has been circumcised. *Qamīṣ* (shirt) is worn by the girls at a very early age. The shirt of an unmarried

girl differs from that of a married girl in that the latter is tight at the waist and has more silk work in front.

Betrothal.—When a man wishes to take a wife he manages by some means to see the girl. If he likes her, he sends some elderly men (*astāzai*) to her guardian to make overtures on his behalf. If the latter consents *walwar* (bride-price) is fixed, and Rs. 10 or Rs. 15 are given as earnest money. This is called *Zarūnkai*. In pre-British days, the *walwar* varied from Rs. 60 to Rs. 240, but it has now risen to Rs. 300 or Rs. 600, and in some cases as much as one thousand rupees are paid. The reason for this high price is the prosperity of the people. On receipt of the earnest money the father of the girl presents the would-be son-in-law with a needle in which a piece of red or green silk thread has been inserted. This union is significant (so the *Mullā* said) of the union between the girl and the boy, the needle representing the former and the thread the latter. The father also presents a handkerchief. This completes the betrothal (*Kozhulāh*) ceremony and the parents or the guardians of the girl cannot afterwards withdraw from it. On receipt of the articles mentioned, the bridegroom's party distributes sweets; sheep are killed and dances held. On the second day a few friends of the boy take some money with them and go to the girl's house. This is called *Bandui*. The girl's father presents turbans to the party; these are called *Khillats*. Among the Mehtarzais the first *nikah* (marriage ceremony) is performed on the day of the betrothal and thenceforward the bridegroom is at liberty to visit his intended wife in her father's house, and enjoy all the privileges of married life. Among other *Kākars* in Zhob, such visits are said not to be permitted. The system of marriage by exchange also prevails. This is called *Sarai*. In the course of such an exchange, the parents of the younger girl have to make a small additional cash payment the amount of which varies. To quote an actual case, Mir Bāz of 'Alōzai Tilerai gave his sister to Pozwa of Firōzi Kanr, taking Pozwan's daughter for himself. Pozwan's daughter being the younger, he has agreed to pay Rs. 80 in cash as well.

Exchanges are arranged by the guardians of the parties concerned. In these cases also it is necessary to present the needle and thread and handkerchief.

Marriage ceremony.—Marriages are not generally performed in the month of *Ṣafar* (second month of the Musalman year). Among the Mehtarzais, Thursday and Friday is preferred for marriage. The date is fixed by the parents of the bridegroom. Among the Mehtarzais, the bridegroom with his relations goes to the girl's house and the *Mullā* belonging to the bridegroom's party performs the *Nikah* (marriage service) there. The bridegroom wears a new dress, and so does the girl.

Among the Sargarās, the bridegroom with his relations goes to the girl's house; all eat their evening meal there and stay for the night. In the morning the girl is clad in a new dress and is brought to the bridegroom's home and the *Nikah* (marriage service) is then performed at the bridegroom's house. The *Mullā's* marriage fee varies from Rs. 2 to Rs. 5 which is paid by the guardians of the bridegroom. Before the British occupation, the Mehtarzais used to pay to their village headman from Re. 1 to Rs. 2 on the marriage of their sons. This has now been discontinued. Among the Sargarās the mother of the girl accompanies her to her new home and lives with her for a few days to initiate her into her new duties. The bridegroom then presents her with a *chadar* (cloth for covering the head) and escorts her back to her home.

Among the Mehtarzais, the *Nikah* (marriage service) is performed in the morning and the girl's mother and a brother accompany her to her new home. The brother soon returns to his home, but the mother stays with her daughter for a week or ten days, and makes the bride familiar with her new duties.

Dower (Kolang).—A Sargara of the middle class generally gives the following dresses, &c., to a daughter on her marriage :—

Dress. One *Chadar* (long cloth for covering the head) white.

One long shirt, generally red *Sālū* with silk work.

Ornaments, *Paṣol (Panj, Downī)* an ornament worn on the forehead
Gharū (Hastī) necklace.

Bangles (of brass).

A pair of Multānī shoes. These are seldom worn except on the occasion of weddings.

Furniture.

One *Kumbal* (Carpet).

One pair *Khurjins* (saddlebags).

Palman (Itazai) (Quilt).

Gholde (A grain bag).

Gadwā (Copper vessel for water).

A skin for *āttā*, etc.

Kāsā (wooden grain measure).

Naghrāi (iron tripod for cooking).

To the bridegroom :—

One pair white trousers (*partuk*).

One shirt (white).

Paṣkā or *lungī* (Head dress).

The new moon of Safar.—When the moon appears in the month of

Şafar (the second month of the Musalman year) young unmarried girls assemble, light a fire and all sing the following verse :—

*Safar pase or walagadō.
Agha mur shū nor walagadō.*

which may be rendered :—

The month of Safar is inauspicious and full of calamities. These fires are burnt to reduce or burn away its evil tendencies.

Rain compelling.—If no rain falls after the wheat crop is cut in June or July, the women assemble and make a doll from a piece of wood covered with cloth, which is called *Lādō*. One of them carrying it in her hand, acts as leader, and the procession goes round the village, singing the following song :—

Lādō Lādō ci ghwāri ? What does Lādō want ?

Pa Mazaka shini wāshā ghwāri. She wants green grass in the land.

Pa asmān shinkai wara ghwāri. She wants gray (literally green) clouds in the sky.

Kurwe Khurwe ūro ghwāri. She wants a Kurwa (measure used for flour).

The villagers give them *ātlā*, *ghī*, and other articles of food, and cakes are baked and distributed. This procedure is said to bring rain. In some cases the party visits neighbouring villages also.

*The origin of the Sanzarkhels.**

Mullā Macakh gave me the following account of the origin of the Sanzarkhol Kākars :—

Sarlai and Sughrak were two brothers, both of whom were married. Sughrak's wife died in his old age leaving him no issue. One day his sister-in-law (Sarlai's wife) enquired from Sughrak whether he would like to re-marry, and whether he considered himself fit, in view of his old age, for the function of procreation. He replied that he was quite fit. She mentioned this to her husband, who in his turn made enquiries from his brother. Sughrak again answered in the affirmative and asked his brother Sarlai to arrange to get him a woman named Lazgi Lūni. Lazgi Lūni was an old maid, a Saiad by birth, who had so far declined all offers of marriage. She was living in the Duki country in the Thal-Chotiali District. Sarlai proceeded there, and entreated Lazgi Lūni's parents to give her in marriage to his brother Sughrak. They replied that their daughter had so far refused offers of marriage from the young, the handsome and the wealthy and that she would never care to be

* One of the main clans of the Kākars (*vide* Baluchistan Census Report).

married to an old man like Sughrak. Lazgi herself, however, volunteered to marry Sughrak, but obtained a promise from Sarlai that in the event of Sughrak's death, she should be sent back to her parents in Duki. Sarlai brought her with him to the Hindūbāgh country where she was married to Sughrak. The couple lived happily together in the Marzaghān hills for some time, and then Sughrak died, leaving Lazgi in a state of pregnancy. According to his promise, Sarlai sent Lazgi back to her parents in Duki, giving her a seal belonging to her husband, and telling her that in case of the birth of a son, she should give the ring to him, and send him back to his father's country, but if the child happened to be a girl, she might retain her. In due time, a male child was born, and Lazgi gave him the name of Sanzar. I have not been able to gather the precise meaning of this name. When he grew up his companions taunted him by saying his father was unknown, and he thereupon enquired from his mother, who his father was. His mother gave him the seal and said that it was his father's who used to live in Zhob, in the kingdom of Miro Mughal. The headquarters of this Mughal were at Khānki in the Hindūbāgh valley. The lad, Sanzar, taking a slave with him, left Duki and came to Zhob. When he reached Marzaghān he saw some young girls picking up a wild herb called *Sandai*. He took the herb, by force, from the girls and ate it. The girls came to their father who happened to be Sarlai, and informed him of what had happened. It was Sarlai's duty to get a supply of this herb every day for the Mughal. The lad, Sanzar, had meanwhile followed them to their home. The girls pointed out the lad and said that it was he who had snatched the herb from them. Sarlai attempted to strike him, and Sanzar raised his hand in self defence. Sarlai thereupon noticed his brother's ring and recognized it. He embraced the lad and informed him that he was his uncle. At this juncture, a king's messenger came to Sarlai to ask for the herb. Sarlai told him that the herb had been eaten by Sanzar. The messenger returned to the king and informed him of what Sarlai had said. Thereupon the king commanded that Sanzar should be summoned to his presence. A messenger was sent, but Sanzar would not obey the king's summons. Armed men were then sent to bring him, and they too failed to take him to the king. The king then sent a messenger with the Korān to Sanzar and with an assurance that he would do him no harm, if he came to him. Sanzar then went to the king. His slave also accompanied him. Sanzar told his slave that if he received orders to loosen the girths of his horse, he should tighten them, but if he was ordered to tighten the girths, he should loosen them. Before Sanzar's arrival, the king in consultation with his courtiers had decided to kill him. The king's daughter who was seated

in an upper storey of the court-room heard of this, so to warn Sanzar of the fate that awaited him, she pricked her finger with a needle and the blood fell on the spot where Sanzar was sitting. Sanzar's dog began to lick the blood, whereupon the king's daughter cried to the dog, "Is your master blind?" Sanzar heard the voice, took the hint, and ordered his slave to loosen the girths of his horse. The slave as pre-arranged, thereupon tightened them. Sanzar then mounted, caught hold of the king's daughter, seated her behind him on his mare and told his slave to catch hold of the tail of the mare. Then he made the mare jump the parapet of the *Khānki* fort and in one leap she covered a mile and arrived at a place called *Manzaki*, where now stands a heap of stone called *Sanzar silai* (Sanzar stone). With another leap she covered another mile. On coming out of the fort, Sanzar cursed the king, saying: "May your town be burnt by fire." In consequence the town caught fire and was reduced to ashes with all its inhabitants. At the same time the forts at *Hindūbāgh*, *Shinā Khōrā*, *Margha*, *Kārezgai*, *Bori*, and *Duki*, which were in the possession of the *Mughals*, suddenly caught fire and were burnt to ashes. Sanzar married the king's daughter, and he got a wife for his slave also. Each of them had twelve sons. Sanzar's sons killed eleven out of the twelve of the slave's sons, and Sanzar was very angry with them on this account. He then blessed the twelfth son of the slave, saying: "May God grant you the powers of your eleven dead brothers." Then he sent him away. The *Dumars** of *Sāngān*, *Baghān*, and *Sumālan* are said to be the descendants of this slave.

Kākar dwellings in Tang Haidarzai.

The *Tangi* (pass) is about half a mile in length, and the slopes of the surrounding black hills are covered with huts, several of them being made of stone walls, and roofed with *Kizhdi* blanket, belonging to the *Haidarzais*. These are called *Khads*. I visited one of them. The general description of this primitive habitation is somewhat as follows:—

(1). It is about 50 feet long and 10 feet broad; the height inside is hardly over 4 feet, and outside about 2 feet, both the sides are somewhat rounded.

(2). The ground has been dug about 2 feet below the surface and stone walls (loose stones without mortar of any kind) have been erected on all sides, leaving two apertures which answer as doors.

(3). Over these walls are placed small poles, which are curved, the lower ends resting on the ground and the upper ends being tied

* The origin of the *Dumars* is obscure.

together with ropes and pieces of gunny. Over these are placed blankets. Ropes are attached to the ends of these blankets, and they are then fastened down to stones along the walls. Out of the total length about 10 feet are set apart for the family, the partition being effected by means of a *kirā* (matting made of the sticks of the tamarisk (*gaz*)). The rest is allotted to the sheep. Inside the family enclosure there is a small plot reserved for the sheep which are being specially fed and fattened for *Landis*, (salted meat, the Afghān equivalent of billtong.)

(4). The sheep pen has a sort of *Manhā* (platform) in the centre. It is made of four sticks stuck in the ground, with other sticks placed across them, and the top covered with rags and leaves. The shepherd reposes here during the night amidst his flock. I entered this place, and it was full of sheep-dung and warm almost to suffocation.

(5). The household furniture consisted of some *khōsās* (coats made of felt), old rags, *gadwā* (bowl), *kaṭwā* (cooking earthen pot), *lobi* (flat stone for baking bread), and a few skins for water and grain.

R. H. B.

Note on the Faqirs of Baliya-Dighi in Dinajpur.—By MAULAVI ABDUL
WALI.

[Read 3rd June, 1903].

Twenty-six miles west of Dinajpur town is a police station called Hemtabad. Within its jurisdiction is situated the Mauza Baliya-Dighi, which, since the time of Shāh Shujā, has been the seat of certain faqirs.

It is said that there was a Hindu Rājā, named Baliya, who lived there. A faqir named Shāh Sultān Hasan Muria Buralma came to see the king and shouted so loud that the palace shook, nay, even, the Rājā himself trembled. He demanded an audience. This was refused, but various things were offered him which he declined to take, till at last he asked for as much ground as he might cover with the skin he used to sit on. This was agreed to,—whereupon it began to spread, till it reached the palace and throne of the Rājā. The Rājā jumped into a tank or dighi shouting "*Rām, Rām*" and was drowned, but he is still believed to be living in the water. The tank is known as *Baliya-Dighi*.¹

Two of the gate-keepers of the king, after what they had witnessed of the sanctity of the saint, became converts, and were permitted to marry the two daughters of their late master but the princesses fled. One of them was turned into stone when she reached Mauza Bendal—three quarters of a mile towards the north-west of Baliya-Dighi. The stone is now worshipped by the Hindus as Bhairapi. The other princess drowned herself in a tank close to the fair of *Nikmarā*. The faqir settled at Baliya-Dighi and began to preach among the people.

A man named Khapru Mandal who used to supply milk to the saint, became his disciple and grew very rich by the blessings which he bestowed. It is said that people still find coins of that period at the place where his house was situated.

The saint, after his death, was succeeded by his principal disciple who, when advanced in years, entered his tomb alive. The present faqir is tenth in succession from the founder of the colony.

¹ An almost identical story is related by Mr. C. J. O'Donnell in his "*Note on Mahāsthān, Bagura*." J.A.S.B. for 1875, page 185. Similar stories of religious mendicants appearing and subjugating Hindu kingdoms and principalities are very common in this part of the country.

The beliefs and practices of these faqirs are in many ways anti-Islāmic. They grow long hair on their head, which they call *bhik* or *jata*; put on coloured cloths, wear a small piece of cloth instead of breeches called *kofni*, and use shackles of iron and long iron tongs. They sit with thick sticks placed as a support under their arms. They never take food touched by other persons, and subsist mainly on unboiled rice, clarified butter and salt. They do not eat fish or meat.

The faqirs are the members of the Basriā grōh, Taifūriā *Khānwādā* and Tabāqāti *ghar*. In other words—as I understand from this—the Taifūriā *Khānwādā* is a branch of Basriā grōh and the Tabāqātiā *ghar* is again a branch of Taifūriā *Khānwādā* an order introduced by Shāh Madar.¹ Until recent years they lived a life of celibacy. They possessed large *jaigirs*, given them by former kings and lived in great style. In their tours, they carried the fish standard called *māhi-o-muratib* and were accompanied by a large retinue. The *Sannal* granted by Shāh Shujā which I copy below gives curious details of the former powers and privileges of these faqirs.

The father of the present faqir broke the rule of celibacy. Embarking on litigation, lost the estates. Their title is *Buraknu* or nude; till recently they wore only one simple piece of cloth and even this was probably not worn in earlier times.

¹ The disciples of Shāh Madar or Zinda Shāh Madar are divided, it is said, into four classes: lovers, judges, lunatics, and seekers after truth.

In a small manuscript recently found by me the following orders of faqirs are distinguished:

I. *امامشاهی* the third grōh (order) is *Imamshahi* founded by Shāh Daulat *Khān* Bukhārī, who gave up *amāri* (the life led by the wealthy) and accepted *faqiri* (poverty) and Shāh Daulat set fire to his *Khirqā* and out of the dust drew (the letter) *alif* on his forehead. He thus tore his egotism (*nang*) into shreds. That is the sign of the members of the order in the midst of the saintly fraternity.

II. *حاجی قاسمی* the second *Ilāhī* 'Qāsimi, founded by Shāh Qāsim. Those who belong to this order fasten a bell in a leather belt round the waist, and do *dhamāl* (i.e., dance while jumping). The third Karīmāl *Jhīti*, otherwise called *Karāl Jhīti*. The members of this cult being intoxicated with love (*ishq*) flag their own body. The fourth order traces its birth to Mūsā nang. They, of this order, put on the dress and ornaments (jewels) of women (*randīs*) and dance in the assembly of the faqirs. The fifth is called *Jalāliyā* after Saiyed Jalālud-Din Bukhārī. The faqirs of this order hold in their hands the *Mārkhōr* branches (?) (*shakh-i-mārkhōr*) and when mad with love say *ahyān ishqul-lah* (?) But they call themselves *Jiddiyya*.

III. The *Khānwādā-i-Tabaqātiā* is called after *Khāwāja* Abū Yazid Bistāmī Taifūr-i-Shāmī. Basriā is called after Shāh Hasan Basri.

When the Baliya-Dighi faqir makes a disciple, the following initiatory formula is taught him:—

Whose word ?	...	...	...	God's
Whose kalima (creed) ?	...	...	...	Muhammad's
Whose fakiri ?	Shāh Madar's, who is living.			

Upon whose hand of laiat (initiation) ? (The name of the present faqir).

It would seem that these faqirs are a survival of a corrupt form of ancient *sufism* mixed with Hindu Jogi ideas.

The following mystic formula is either incorrect in its construction, or the wording has been so altered that none but the faqirs can understand it. The faqir was rather reluctant to explain its purport to me and the copy I took, I suppose, was defective—

حال علي كي عشق - كلمة بوزخ كي - ذات و صفات مدوح مدوح تاک فاک آشکارانیم -
 کل نفس ذوق و شوق - هادي هداکم - سينه صفاکن - فقر عطاکن - هادي هو الله -
 افقر ذات الله مرشد عين الله

The translation of the passages not underlined may be made thus:—
 The love of Ali is the *Hāl* (ecstasy); the (thought) of *barzakh* (the interval between death and the day of Resurrection) is the Creed; the person and essence (of the Deity) is o *suddukun muddukun tāk fāk āshkārā nāim kull-o nafsīn zauq shauq*.¹ May the redeemer redeem thee; sanctify the heart; acquire spiritualism. The Redeemer is He—the God; the spiritualism is the person of God; and the *murshid* (priest) is God himself.

COPY OF SANAD.

Seal.

شاه محمد شجاع (ولد) صاحب قران ثانی
 شاه جهان پادشاه غازی

Text.

صاحب کرامت انتساب مکرم و معظم مظهر فیض بخش - آذتاب شرح

¹ The *sufis* generally write and speak their thoughts in figurative and ambiguous language. The so-called ignorant mendicants, specially when they wish to speak against Islām or Muslims, conceal their real feelings, like gipsies, by altering the words. *Suddukun muddukun* might have been intended for the Qurānik words *subbūhan Quddusan*. *Ashkārā nāim* (I am not clear) may be a hint for what precedes or follows. The ungrammatical *kull-o-nafsīn zauq shauq* (every being joy and ecstasy) may be contrary to the Qurānik *verso kull-o-nafsīn zāiqatul maūt* (every man must taste death). I cannot guess what is meant by *tāk fāk*. *Tāk* means a vine-plant, and may mean wine, which may help to acquire (contrary to Islāmic law) that joy and ecstasy.

شریعت - کاشف اسرار طریقت - جامع الکمالات حقیقت - جناب شاه سلطان حسن
موریہ برہنہ دام عنایتہ *

چون خلوص حقیقت (—) سرکار ابد پایدار (با) ان سالک مالک
حقیقت و معرفت بدرجہ غایت است لا جرم حسب استدعای ان مجمع الکمالات
سبحانی - و مظهر فیض بخش ربانی - برای جلوس غلامان خاندان فقیری -
و تجمل عرفان و پیری و مریدی - از سرکار عالیمدار اجازت عام و حکم تمام داده
می شود - کہ آن فضیلت پناه بان و نشان و علم و چوب و عصا و کوب و کوی و ماهی
و مراتب و چیراس و بدر نوبت و گھڑی و غیرہ لوازمہ جلوس همراه خود داشته
بابت ہدایت خلائق و سیر و سفر و شہر و دیار (و) اضلاع و امصار - و کفاف و جواز
و مقامات و منازل ہر جا کہ خواہش و رغبت و میلان طبیعت شود روند ہمگی
جلوس همراه خود روند - بعد انتقال ان سالک حقیقت و معرفت - لوازمہ جلوس
نسلاً بعد نسل (۹) پیری و مریدی کردہ باشند و برای ہدایت خلائق خدا (و) دین
سالک یعنی حکم جاری فاضلان و فضیلت پناہ را اختیار است (۹) ولا وارثی مال یعنی
پیر پال ولا خراج ضبط نمودن درمیان ملک نیک و بہار و اویسہ اختیار ان سالک
مالک است - و ہر جا رغبت (و) میلان طبیعت ان بزرگوار شود روند - زمیذادان
و رعیان بر سردادن حاضر خواہند ماند - و حضرت مخدوم سید شاہ جلال تبریزی
ساکن پتدوا پرنکہہ دائیس ہزاری محال اوقاف و ملک و اسباب سلطنت و غیرہ ہمہ
چیزہا حضرت چیدن لہو لنگر لکا پتی (را) از جانب حضرت سید شاہ مخدوم جلال
عنایت و مرحمت یافت - بعد ازان جناب شاہ سلطان حسن موریہ را از جانب سرکار
عالیمدار عطا شد - درین مادہ سرکار عالیمدار باخدی (با) فوجداری یا دیوانی مانع
و متعرض اینمعنی نخواہند شد - نوع من الانواع برای محصول گھاٹ و گذر و غیرہ
بازرہی مناخذ نخواہد ساخت - بنا بر سذہذا متضمن عنایت و اجازت لوازمہ جلوس
و غیرہ حضرت کمالات ان کرامت دستگاہ و اجازت حضور لامع النور عطا و مرحمت شد
تحریر فی التاريخ بسم ریگم شہر رجب المرجب سنہ ۱۰۶۹ ہجری فقط *

(میر علاء الدولہ) مہر وزارت پناہ مدار المہام دیوان میر علاء الدولہ

فی التاريخ ۲۱ شہر رجب المرجب

(شاہ شجاع الدولہ)

[Note:—The certified copy of the above *Sanad* which is now in possession of the present Baliya-Dighi *Shāh* Sahib was transcribed from the original in the Rajshahi Court. It was filed in several cases. The Persian of the *Sanad* (Copy) is in several places defective owing to the

blunders of the Copyist. I have, therefore, put within brackets such words as were either omitted or could not be deciphered. The incomplete or vague sentences are marked with a note of interrogation, and the superfluous or incorrect words are underlined.]

ABSTRACT OF SANAD.

Prince Shāh Muhammad Shujā', son of Sahib Qiran-i-Sāni Shāh Jahān Padshāh-i-Ghāzi, who was Governor of Bengal granted this *Sanad* to Janāb Shāh Sultān Hasan Muria Burahna (may he ever be so kind), who is a holy man, can work miracles, is esteemed, venerated and kind, one who unites in his person the three qualities: *Shariyat*, *haqiqat*, and *marifat*.

Whereas, we, whose belief in the sanctity of that holy man is very deep, and in accordance with the requests of the saint, are hereby pleased, for the *Julus* (procession) of the servants and disciples of the holy man (*i.e.*, the saint himself) to order and sanction as under:—

1. Whenever you wish to go out for the guidance of the people, or for travel into the cities, countries, divisions and all sorts of places, where you may like to go according to your free-will and inclination, you may take all the articles of the *julus*; *e.g.*, banners, standards, flags, poles, staffs, band, *māhi* and *muratib*, etc.

2. After your departure from the world, the whole articles of the *julus* as well as the right of *piri-o-muridi* (the office of priest and disciple) will descend to your successors.

3. You will also be able for the good of mankind and the faith of Islām to be guided by the learned people.

4. You will be entitled within the countries of Bengal, Bihar, and Orissa, to confiscate, as you may like, property to which there is no heir, or *pirpāl* and rent-free tenures.

5. When you pass through any tract of the country, the land-holders and tenants will supply you with provisions.

6. Hazrat Chetan Lahu Lankar Lankapati (Lord of Ceylon) received from Hazrat Makhdum Saiyid Shāh Jalāl Tabrizi of Pandua the Pargana Baishazari, *wagf* mahals, milk tenures, and other things of Government. After that they were granted by the Sarkar (of the Prince) to Janab Shāh Sultān Hasan Muria.

7. No cess or contribution of any kind will be levied.

8. The *Sanad* was written on the 21st day of Rajab 1069 H (= 1659 A.D.) and was sealed by Mir 'Ala-ud-Daula, the Vazir and Madarnl-Muham-i-Diwan (on the 21st Rajab) and by Shāh Shuja-ud-Daula.

Notes on the Hindus in the Nushkī Tahsil of the Chagāi Agency in Baluchistan.—By R. S. DIWAN JAMIAT RAI, *Special Assistant to the Superintendent, Imperial Gazetteer, Baluchistan.*

[Read 1st July, 1903.]

The following notes are the outcome of enquiries made by me from some of the principal Hindu shop-keepers of Nushkī, who have been in the District for a considerable time.

There are in all about thirty families, old inhabitants, of whom twenty-two have now built houses, and are living in the new bazar, the remaining eight families are still living in the surrounding villages. Some of them have been in the Tahsil for five generations. The majority of them came from Kachhi and Shikārpur. They are all Arorā Hindus and belong to the following clans:—

(1) *Dakra Clan.*—Mandanr, Sadānā, Tar-reja, Ghakar, Kāla, Rabar

(2) *Dhakra Clan.*—Katārā, Kaurā, Wadwā.

There are also about twenty Hindu families in Shorāwak, in Afghān territory.

The Nushkī Hindus marry among themselves, but have also marriage relations with the Shorāwak Hindus. They do not marry in the same section, nor do they marry relations up to five degrees both on the father and mother's side. The marriages are all *pun sat* (free gifts), and no bride price is paid. They do not re-marry their widows. Girls are generally married between 10 and 16 years of age, and boys about the age of 15.

They have not very clear ideas about their religion. The majority profess Sikhism; but the Shikārpuris worship Daryā Baksh, the River Pir of Sind. So far as is known, none of the Hindus have been converted to Muhammadanism. There is, however, a curious instance of a Hindu taking a Muhammadan girl as wife. A Hindu named Chozhān, son of Daryā Baksh, caste Kaurā Arorā, now lives in Ahmadwāl, a village about 15 miles from Nushkī. Some 30 years ago he fell in love with a girl named Sharo, a slave of Mirshāh, Fakīrzāi Rakhshāni, bought her for Rs. 300 and began to live with her. The Naib and other men of influence raised objections to this connection, but Chozhān made them valuable presents to keep them quiet. From this slave girl, Chozhān had a daughter who is married to Shādī Khān, son of Dost Muhammad, Naib of Chagāi. Chozhān and his wife are said to be living in separate *Kuds* (huts) and have separate arrangements for food.

Hindus have been in the habit of buying and keeping Muhammadan slaves, but since the British occupation the slaves have been leaving them. The male slaves are employed in looking after cattle, bringing water and firewood, and doing other out-door work. The female slaves do household work, such as looking after children, cleaning cooking pots, and washing clothes. These Hindus have some peculiar usages of their own:—

(i) A Muhammadan can clean their pots with ashes, sand or dust, but he must not wash them with water.

(ii) A Muhammadan may bring them water in a skin, a brass pot or an earthen pitcher.

(iii) A Hindu may wash with water the *Tobi* (stone griddle for baking) belonging to a Muhammadan, sprinkle salt on it, and then bake his own bread on it.

(iv) A Hindu may drink water from a water skin belonging to a Muhammadan and *vice versa*.

(v) A Muhammadan must not touch the cooked food intended for a Hindu, but he may carry it in a pot, or in a piece of cloth.

The Hindus (males) wear the *choti* (tuft of hair) and the *Janeo* (sacred thread).

A Bikaniri Brāhman has been living among them for the last forty years. He names children on the day of birth and is given As. 2 to As. 4 as a present. On the sixth day he comes and writes out a brief horoscope, called *Ohhati*, in the presence of the father, in one of his account books. The mother performs her bath that day, but she is not considered to be purified until after the tenth day.

On the birth of a son, *churi* (bread well pounded and mixed with *ghī* and sugar) is distributed among relatives and friends, and with it is given a cake (called *Ōti*) which is prepared of *gūr*. The ceremony of giving the *cholā* (shirt) is performed on the fifteenth or twenty-first day or, in rare cases, at the end of three months. Till then the infant must be wrapped up in a piece of old cloth. On this occasion, a feast is given in the case of a son to relatives, and the Brāhman receives a fee of Rs. 1-4 for officiating.

They perform *Çrāddha* (giving food to Brāhman in the name of dead ancestors), but as the Brāhman does not eat the food cooked by the Aroras, he receives uncooked food; this is called *Sidhā*.

Betrothals are arranged by the Brāhman or by the family elders. The acceptance on the part of the parents of the girl consists in presenting a plate with 5 chattāks of *gūr*. If the middle-man is a Brāhman he receives a fee which varies according to the means of the bridegroom from Rs. 2 to Rs. 10.

The terms used locally are :—

Betrothed boy	Mangendā.	Best man	Ānar.
„ girl	Mangendi.	Husband	Munṛs.
Bridegroom	Ghoṭ.	Wifo	Zāl.
Bride	Koṇwār.		

After betrothal, the boy and the girl are not allowed to meet, see, or speak to, each other until marriage. The parents, and other near relations of the boy do not speak to the girl, and the girl's relations do not speak to the boy.

The parents of the bridegroom consult the priest who, after examining the horoscope, fixes a date for the marriage. Then the elders of each party assemble and go with the bridegroom, who takes with him a plate full of rice on which are placed a pice and a lump of *gūr*, to the Brāhman who then announces to them, the date to be fixed for the marriage. This is called *Mahūrat*. The same evening the bridegroom, with his elders (*Panchāit*) goes to his father-in-law's house and, for the first time after the betrothal, speaks to him. This is called *Alāi galāi* (conversation). The father of the girl presents to the boy's father a cocoanut and also gives to each member of the *Panchāit* a cocoanut or some dates (*khajī*). The party then returns and sweets (*patāshās*) are distributed. On this occasion the bridegroom supplies both the morning and the evening meal to the *Panchāit*.

On the second day, the bridegroom takes with him his near relations (five in all) and pays a formal visit to his mother-in-law. This is also called *Alāi galāi*. The mother-in-law gives a cocoanut to her son-in-law and to each of his companions, and also gives the boy a new suit of clothing. This visit is paid about midday, and the party returns to the bridegroom's house, where another feast is given.

On the same day, in the evening, the bridegroom and the bride, each performs in his or her house the ceremony called *Buki* (literally handful). This consists of taking about two maunds of wheat and some barley and distributing by *buks* (handfuls) to poor men. On the same evening the bridegroom and bride are given new shoes, which they must not take off even at night, until after the marriage ceremony has been performed. Charms are read over a few grains of *chīnā* (millet) by the Brāhman and the grains are then placed in the shoes of the boy. This is done in order to ward off evil. It is believed that at this stage an evil-minded person may work some charm on the boy and render him permanently unfit for the performance of his conjugal duties.

On the third day, at midday, the father of the bridegroom goes to the father of the bride taking with him his *Panchāit* but not the bridegroom. The bride's father also collects his *Panchāit* and, after display-

ing the ornaments, clothes, etc., which he proposes to present to his daughter, distributes dates or cocoanuts among the bridegroom's party who then return to their home. In the evening the Brāhman is called in and the bridegroom after performing his ablutions is seated on a brass or wooden plate turned upside down under which some copper coins are placed; he puts on new clothes, and the marriage crown called *Mukat*, which is made of paper, and not of silver as is often the case in the Panjāb. He next arms himself with a knife (*kāti*) and bestrides a mare, while his best man (*Āṇar*) arms himself with a sword and gets up behind him. After the evening meal, the bridal party (*Janj*) starts for the bridegroom's house, where they sit on *darris* which have been previously arranged. The bridegroom and the best man then go to the house where the girl is kept, and the latter cuts with his sword the rope with which the door is tied. This is called *Nori kaprān* (cutting the rope). The girl is then brought out shrouded in a cloth. She stands inside and the bridegroom outside. Both place their right foot on the threshold the girl's being below, and the bridegroom's above. Each of them is then measured three times with a rope. After this the girl is taken inside and is covered with a cloth and the boy returns to where his party are sitting. He again goes inside the house. On the cloth under which the girl is lying is placed a small quantity of cleaned cotton. The bridegroom, and the sister of the bride remove this cotton gradually, and when all is removed, it is weighed. This is done three times, and the bridegroom again returns to his party. After this, the bridegroom and the bride are bathed and the Brāhman performs the marriage ceremony in the presence of the near relations only. The marriage service is said to be the same as in the Panjāb except that three (instead of seven) turns are taken round the fire (called *lān wān*). After the service is over the bride is brought, usually in a *Dolī*, to the bridegroom's house.

On the fourth day (that is, the morning following the marriage ceremony) the bride's father gives a feast to the bridal party, including the bride and bridegroom. This is called *Satwārā*. After taking the evening meal the party, including the bride and the bridegroom, return to the bridegroom's house. The bride must not again visit her parents until a new moon appears. When this takes place the bridegroom with a few of his relations goes to his father-in-law's house, taking the bride with him. They take their evening meal and are given cocoanuts or dates and then return. After this the girl can visit her parents at any time. In well-to-do families the marriage expenses come to Rs. 500 on the bride's, and Rs. 1,000 on the bridegroom's, side. The Brāhman who officiates at marriage earns from Rs. 30 to Rs. 40,

The Hindus say that before the British occupation they did not pay fixed fees, in cash or kind, to the headman of the village, but they used to send him cooked food on the days they entertained their friends and relations. They had, however, to pay a poll-tax called *Jīja* (Arabic *Jiziya*), which varied from As. 8 to Rs. 2-8-0 a family, according to their circumstances. The proceeds were divided equally by Sardar Muham-mad Ali Khān and the Khān's Nāib.

Like the Barkhān Hindus they also observe the ceremony called *Bhore*, or the distributing of cooked rice among the relations and friends on the completion of the seventh month of a married woman's first conception.

Boys and girls are clean-shaved (called *Jhund*) within twelve months of their birth. This ceremony is performed on the bank of the Khaisār stream from which Nushki is watered. Boys are invested with the sacred thread (*Janeo*) when seven or eight years of age. On this occasion the priest is paid a fee of Rs. 2-8.

The corpses of children under seven years of age are buried, while those above that age are burnt, and their bones (*phul*) are thrown into a spring of water called *Dhārā Brahm Sar*, which is about 22 miles from Nushki in the Anguri hill. Recently they have begun to send the bones to the Ganges at Hardwār. The ceremonies to be performed on the occasion of a death cost about Rs. 100.

All the Hindus, including females and children, know Brāhūi, and most of the men speak Balūchi also, but in their homes they speak the Jatki dialect. Some of the words are given below:—

Father	Bābā.	Daughter	Dhī.
Mother	Amān.	Boy	Chhokar.
Brother	Bhirā, Bhāo.	Girl	Chhokīr.
Elder Brother	Kākā or Lālā.	Father-in-law	Thakur.
Sister	Bhenṛ.	Wife	Zāl.
Son	Putr.	Widow	Raunar.

The dress consists of:—

Males.

Sāfā or *Lungī* (tarban).

Kurtā (*cholā*) (shirt).

Suthanṛ (white or red) (trousers).

Khes or *Chadar* (in winter only).

Females.

Chadar (*Kapṛā*) any colour except dark blue or black.

Cholā (shirt) any colour except as above.

Paijāmā (coloured).

Before the British occupation, Hindus generally wore a red *Suthanṛ* or *Sāfā*. The women, like those of the Brāhūis did not wear *Paijāmās*,

but some of them have now begun to use them. The nose-ring (*nath*) is not worn by unmarried girls. Married women, but not widows, have plaits of hair (*zulf*) hanging on both cheeks. Hindu females did not formerly observe *pardah*, but since they have come to live in the new town they are keeping within doors.

In Sardar Rahman Khan's time, *Sung* was levied on imports and exports at the following rates:—

	Rs.	A.	P.	
Piece goods	0	4	0	a maund.
Wool	0	6	0	„
<i>Ghi</i>	4	8	0	per camel-load.
Tobacco	0	4	0	a maund.
Dates	0	4	0	a camel-load.

Wheat or other grains and salt were free. This *Sung* was abolished by Government some five years ago.

Notes about the Wanēcīs (Spin Tarīn Afghāns) of the Shahrig Thasil, Thal-Chotiali, Baluchistan.—By RAI SAHIB DIWĀN JAMIAT RAI, Special Assistant to the Superintendent, Imperial Gazetteer, Baluchistan.

[Received 15th June, Read 1st July, 1903.]

The Wanēcīs are a section of the Spin Tarīn Afghāns, and the following extracts from Mr. Hughes-Buller's Census Report* of Baluchistan for 1901 will be of interest:

"The Spin Tarīns, with few exceptions, have left their original home in Pishin, and migrated southwards to the Shahrig and Duki Tahsils of Thal-Chotiali. Numerically their strongest group is the Wanēcī, which is said to come of an alien stock. Some of the names included in it are certainly suggestive; such for instance as Hōt† Malānis, presumably Hōts from the country round Rās Malān, on the Makrān Coast; Marrāni (Afghāns from the Shirāni Marrāni country), and Mehmāni (guests)."

* * * * *

"Theoretically, therefore, an Afghān tribe, as we find it in Baluchistan, is constituted from a number of kindred groups of agnates. That is to say, descent is through the father, and the son inherits the blood of the father. Affiliated with a good many tribes, however, are to be found a certain number of alien groups known as *Mindūn* or *Ham-sayah*. The latter term means: 'living in the same shade.' These groups are admittedly, 'not united to the tribe by kinship.' Take for instance * * * the Wanēcīs among the Spin Tarīns, the majority of whom are locally known as Marrāni and are presumably from the Shirāni Marrāni country."

* * * * *

(a) The descendants of Saraban son of Qais Abdur Rashid.†

(b) Descendants of Sharafuddin son of Saraban :

Spin Tarīn.

|

Wanēcī.

"The Wanēcīs are locally known as Marrānis and are probably an affiliated group."

—o—

* Pages 94 and 119, Volume I.

† The original stock of the Hōts is said to be found in Makrān.

‡ Page 139, Volume I, Subs. Table IV, and pages 214-15 of the Provincial Tables.

The number of Wanēcīs shown in Provincial Table No. 2, page 38, is 2,802, and the sections specified are :—

(a) 'Alizāi ...	...	8	(l) Mēhrāni ...	...	55
(b) Bādāni ...	...	61	(m) Mēlmāni ...	...	362
(c) Daltāni ...	...	71	(n) Musalmāni ...	...	6
(d) Darpatē ...	...	19	(o) Nēknāmzāi ...	...	1
(e) Hōt Malāni ...	...	561	(p) Qalandrāni ...	...	4
(f) Jalwāni ...	...	19	(q) Savinzāi ...	...	10
(g) Khamis ...	...	5	(r) Zaragwāl ...	...	33
(h) Maljāni ...	...	26	(s) Zik Wāni ...	...	15
(i) Marrāni ...	...	1,344	(t) Zirakzāi ...	...	2
(j) Maṭiāni ...	...	163	(u) Wauēcīs unspecified ...	...	34
(k) Mehmāni ...	...	3			

The locality of all is shown as the Thal-Chotiali District.

On going through the details by Tahsils, I find that :—

(a) 'Alizāi (h) Maljāni

(g) Khamis (k) Mehmāni

(n) Musalmāni

are shown under Duki. But none of the Duki people being present, when I made the enquiries from which these notes have been written, I could not obtain any particulars about their sub-sections. (d) The Darpatē are not known in Shahrig, while (p) the Qalandrāni are Marris, and it is probable that they were enumerated with the Wanēcīs, while grazing their cattle in the Wanēcī limits.

Nawāb Khān, the head of the Khorāsāni Wanēcīs was away in Sanjāwi; the principal men present were Misri Khān Zakriāzāi, Marrāni, and Zallā Khān Daltāni, and my enquiries were confined to the Shahrig portion of the Wanēcīs—that is the sub-sections, ordinarily living in the limits of the Shahrig Tahsil (*vide* page 247 Provincial Table No. 3). When I made the enquiries the following Maliks were also present :—

Mado, Mēlmāni of 'Alī Khān Hōt.

Isma'īl, Melmāni of Guda Darga.

Jahān, Nohzāi of Senri.

Lālāk, Mandlāni of Shīn Kach.

Mūsā, Nēkzai of Tēlu.

Fazal, Jalwāni of Dub.

The tract of the country where the Wauēcīs now live and own lands in the Shahrig Tahsil is known as Bābihānr. The story about the acquisition of this land by the Wanēcīs is as follows :—

The country belonged to the Khamis, a section of the Makhīāni

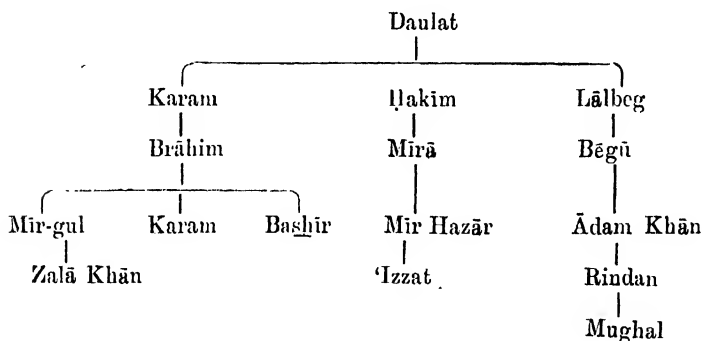
Tarins. Karam son of Daulat and Misri son of Paind Khān obtained a portion of the land from the Khamis in exchange for a *Bihānr* (a filly) hence its name—*Bābihānr* i.e., the price of a filly. The Khamis agreed to give to the Wanēcis this land for so trifling a sum, first, because land had not much value in those days, and secondly, because the Khamis—not a very strong tribe—wanted a stronger people to stop the raids which were being constantly made on them by the Marrīs. The oldest village in Bābihānr is Kot Alī Khān. The Wanēcis who permanently reside in the warm climate of Bābihānr are called Zaragwāl (Zaragwāl is not the name of any particular sub-section), while those who live towards Wani, Shērū and Pūi (Khorāsān) and move down to Bābihānr only during the winter are called Khorāsānis. The Wanēcis of Shahrig have two main divisions:—

(a) The Daultānis, the descendants of one Daulat, who are generally called Daltānis; and

(b) the Bihamdānis.

574

Zalla Khān, the present head of the Daltānis, cannot give the pedigree of Daulat. But the descendants of Daulat are said to have been the following:—



The Daltāni now consist of the following sections and sub-sections:—

1 Daltāni 2 Mirāzāi 3 Zakwāni

and to these are affiliated (a) Hōt Malānis, who are composed of the following sub-sections:—

1 Hadiāni 2 Jalwāni 3 Nikāzāi 4 the Tibānrīs.

It is said that Hōt was a Faqīr, who came from Uchh, in Bahawalpore, to Thal and obtained some land and a spring of water from the Tarins of Thal. Afterwards this spring dried up, Hōt then came to

Bābihānṛ where he settled and married a Wanēcī woman. He had three sons named :—

Had (Hadiānī). Jalo (Jalwānī). Nikā (Nikāzāī).

The Tihānṛīs are the descendants of Tōyī, a Khētrān Shāikh, who married a Wanēcī woman and settled in the Wanēcī Country.

Bādānī (*b*) is a misprint for Bazdānī who are Aspānī Tarīns from Harnai and are now affiliated to the Daltānī Wanēcīs. Thus the Daltānī section consists of :—

Daltānī	{	1 Daltānī	Real Wanēcīs.
		2 Mirāzāī	
		3 Zakwānī	
		4 Hadiānī	Hōt Malānī Faqīrs.
		5 Jalwānī	
		6 Nikāzāī	
		7 Tihānṛī	Khētrān <u>Shāikh</u> .
		8 Bazdānī	Aspānī Tarīns.

If there be a feud among the Daltānīs themselves the grouping is as under :—

I. Daltānī.	II. Hadiānī.
Mirāzāī.	Jalwānī.
Tihānṛī.	Nikāzāī.
Zakwānī.	Bazdānī.

(10). The Bihamdānīs are composed of :—

(a). Mēlmānī. (b). Marrānī.

Mēlmānīs are so called because they came from Mēl in Afghānistān and joined the Wanēcīs. They were Afghāns, but to what particular tribe they belonged, Misri Khān and Zalla Khān cannot say. It is just as probable that they came as *mēhmans* or guests to the tribe and stayed on to share good and ill. The Mēlmānīs consist of :—

1 Mandlānī	} Original stock.
2 'Ali Khel	
3 'Aliānī	Abdullānī Tarīns.

No. 3 Aliānīs are an after-addition, they being Abdullānī Tarīns. They now live in Tuka in the Bābihānṛ circle.

The sub-sections of the Marrānīs with their grouping for internal warfare are given below :—

Group (i).	Group (ii).
1 Zakriāzāī	6 Shērānzāī
2 Nōhzāī	7 Nēknāmzāī
3 Bābzāī (Lūnīs)	8 Mēltarzāī
4 Dādzāī	9 Yūsafzāī

Group (i). (*Continued*)

5 Pēci. (Saiads)

Group (ii). (*Continued*)

10 Makhamzāi (origin uncertain, affiliated section)

11 Harumzāi (origin uncertain, affiliated section)

12 Jānazāi

13 Zīrak zāi

of the above, No. 3, the Bābzāis, were originally Lūnis (Bābis) and No. 5 the Pēcis are Saiads. The origin of the Makhamzāis is not quite certain, but they are *Semlār* (an affiliated section). Similarly the Harumzāis are an affiliated section. The story about them is that two Wanēcis were once travelling along the road, when they saw a bundle wrapped in a blanket lying at some distance. They decided that one of them would take the wrapper, and the other the contents. On opening the bundle, they found a baby boy in it. This boy was brought up, was named Harum and afterwards married a Wanēci woman.

The other sections—the real Marrānis—are the descendants of Umar, a Wanēci. ‘Umar had the following sons :—

1 Zīrak.	2 Zakriā.	3 Mēhtar.	4 Shirān.
5 Jānā.	6 Yūsaf.	7 Nēknām.	

Misri Khān claims his descent from Umar—the direct line being :—

```

‘Umar
|
Zakriā
|
Pir Walī
|
Bahādar Khān
|
Akhto
|
Pāind Khān
|
Misri Khān
|
Dādū
|
Kālā Khān
|
1 Misri Khān (my informant)
|
2 Jumā Khān
|
3 Shambū Khān.

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The Hadiānis, and Tihānṛis among the Wanēcis are considered to be endowed with miraculous powers and they levy *Thuk** from the Wanēcis. They even receive these payments from Marris in Quat Mandāi and Thal. The Pecis also levy a *Thuk*. These sections are known as *Khurādār*. The *Khūrā* (religious payments) received by Tihānṛis, Hadiānis and Pecis consist of the following items:—

- (1). On the marriage or birth of a son. One rupee or a sheep or a goat. This is called *Patkā*.
- (2). At the time of each harvest, a *pūlā* (bundle) of wheat, rice or Jowārī cut.
- (3). At each harvest, one *path* (one seer) of grain per family.

The Tihānṛis and Hadiānis claim to possess the power of curing blights among crops; they are believed to have the power of bringing rain, and of driving off locusts. The Pecis can cure snake bites. Every Pēci has the power of curing snake bites, but the powers of Wali, son of Sher 'Ali of Wani, in this direction are most highly prized. The method of effecting cures is simple. A Pēci is called in, and he makes small cuts with a razor on the arms and back of the patient, licks the blood and then spits it out. Bakhtiār, son of Zalla Khān, was bitten by a snake some ten days ago, and was cured in this manner by Yāsīn Pēci.

Some of the Hadiānis have divided the tribal area amongst themselves for their own purposes; Ghafūr Shāh works and practices among the Marris in Quat Mandāi and Hassan among the Makhīānis and Wanēcis. The Tihānṛis have a different system. They do not divide the area among themselves, but whoever happens to be present receives the dues from clients.

If more than one happens to come to a ceremony, they decide by lots (*Pucā*) the question as to who should collect and retain the dues.

In former days when a tribal war broke out, the first thing the Wanēcis used to do was to get two of the men of the sacred sections to hold up a sheet (*pota*) under which every fighting man would pass. By this means he was rendered proof against the enemies' bullets but not against their swords. If a bullet should hit him, it would not hurt him. Should no member of a sacred section happen to be available, the *pota* was held and the ceremony performed by two leading men of the tribe. About 30 years ago the Wanēcis had a fight with the Dumars in Marhati in the Sanjāwī Tahsil. About 140 Zaragwāl Wanēcis collected. On that occasion the *pota* was held by Shakūr Zakriazāi and Zallā Khān Daltāni. None of the Wanēcis were killed. They killed some Dumars and brought away a number of their sheep.

* "*Thuk*" in Baluchistan consists of payments made to persons of religious sanctity such as Saiads, etc.

The Hadiānis also perform inoculation against small-pox (*Pacha*) and their fees vary from 4 annas to 8 annas per head.

In pre-British days the Zakriāzāis and Daltānis, so the leading men say, used to levy *Sung* (transit-dues) at Wani and in Bābihānṛ, on all trade passing through their country, the rates were :—

				Rs.	A.	P.
Per camel load	...	...	...	1	8	0
Per bullock load	...	...	...	0	8	0
Per donkey load	...	...	...	0	6	0

Animals brought for sale were exempt. The *Sung* was divided between the Zakriāzāi and Daltāni Sardārs, their respective shares being 3/5ths and 2/5ths.

The division of the property looted in tribal wars (called *natur*) was as follows :—

1st. The Sardār's share, called *Panjak*. This was not fixed but varied according to the amount of the loot obtained. Generally the best sheep or bullock was given to him.

2nd. Then the Rāhzan's share. The *Rāhzan* was an officer who commanded the tribal *Lashkar*, and guided them. His share was called *Qul*. It is said that Nawāb Khān (the present acknowledged Head of the Wanēcis) was not a *Sardār* but a *Rāhzan* and that he had no share in the *Sung* or the *Panjak*.

3rd. The remainder was divided as under :—

To each man with or without a sword	...	1 share.
To each gun	...	1 share.

But, previous to this division, compensation for men killed and wounded was deducted. The amount of this also depended on the property looted in the course of the raid, the compensation for a man killed varying from 10 to 100 sheep.

Marriages.—The Wanēcis marry among themselves and no distinction of rank exists. A sardār may give his daughter to, or take one from, any Wanēci belonging to the *Ulus* (clansmen).

The *Walwar* (bride-price) twenty years ago was usually Rs. 40, but as money is now comparatively abundant, the amount varies from Rs. 100 to Rs. 250. The system of exchange, called *Sarai*, also prevails and in such cases the owner of the younger girl pays Rs. 40 in advance. Thus, Bakhshū Zakriāzāi betrothed his daughter (an adult) to Bahādur Zakriāzāi, and Bahādur betrothed his daughter (a young girl) to Mian Khān, son of Bakhshū. Bahādur married his bride first and paid Rs. 40 to Bakhshū. When Bakhshū's son was married to Bahādur's daughter, Bakhshū repaid this Rs. 40. Had Bakhshū's daughter died in the

interval, *i.e.*, before marriage, the Rs. 40 advanced by Bahādur would not have been repaid.

The compensation for various offences used to be as under:—

Rs.

(a). For murder Rs. 2,500 made up of:

- | | | | | | |
|--|-----|-----|-----|-----|-------|
| (1). Cash | ... | ... | ... | ... | 600 |
| (2). <i>Rok māl</i> , <i>i.e.</i> , cattle, etc., in good condition | ... | | | | 600 |
| (3). <i>Phok Māl</i> , <i>i.e.</i> , unfit and useless cattle, etc.... | | | | | 1,300 |

Note.—For purposes of the item: of Rs. 1,300

a gun was valued at ... Rs. 100

a sword do. Rs. 100

cattle: lean, but able to walk, each Rs. 30

a girl (each) ... Rs. 80

The compensation now fixed for a murder is seven hundred rupees.

(b). Compensation paid for injuries was as under:—

For a hand or foot ...	...	...	...	50
Teeth (each) ...	...	...	...	20

(c). In cases of adultery:—

Cash ...	...	...	...	170
1 gun (Useless.)				
1 sword (do.)				
16 goats (do.)				
3 bullocks (do.)				
1 bullock fit for work or				Rs. 40
a girl. Or				Rs. 30

The present compensation in such cases if the parties are Wanēcis is Rs. 300, and one sword and one gun. The *Sīāh-Kārāh* (adulteress) is handed over to the adulterer. In olden days, the woman, if caught, was often killed, but the man was never killed. If the woman was killed, the compensation payable was half the amount mentioned above.

If a man of another tribe commits adultery with a Wanēci woman the compensation payable is Rs. 700. Thus Bakhtīār, son of Zalla Khān, abducted the wife of Mughal (son of Zindan), and paid Rs. 300, one gun and one sword as compensation; Shambē, son of Kālā Khān, abducted Fattah Mālmāni's wife and paid the same amount; a Kanozāi Dumar abducted 'Alī Sher Harumzai's wife and paid Rs. 700; and 'Aziz Harumzāi abducted a Kanozāi woman and paid Rs. 700. The compensation for adultery with a marriageable girl and married woman is the same, but for adultery with a widow it is about half of this amount.

(d). Formerly in cases of theft, if the case was proved, the thief was made to repay seven times the amount stolen. If there was no proof, the guilt of the suspected person was determined by means of (i) ordeal

by water ; (ii) ordeal by fire, which consisted in walking through a ditch in which fire was burning ; and (iii) ordeal by placing a heated iron on the palm of the hand. This was called *Sila*.

The ordeal by water was performed in the Pir Dhand, near Pir Shahr. The ditch used in ordeal by fire was four yards long. A fire was lit in the ditch and four stones were placed in it at equal intervals until they became hot, when leaves of the *Ak* plant (*Calotropis Hamiltonii*) were placed on them. The man was then made to take four paces, putting his feet on the stones. If his feet were not hurt he was held to be innocent.

The procedure for *Sila* was that a heated iron was placed on the palm of the hand of the suspected person on the top of an *Ak* leaf and he was then made to take four paces. If his hands were unhurt, his innocence was proved.

The *shisham* trees (*Zagha*) which grow along the stream near Tuka village are considered sacred and are not cut. When they are washed away by floods, they are cut, but the timber, etc., is only used in Masjids. There is a *Kandi* tree in Pir Shahr which is considered sacred and is not cut by any Wanēci. The wild plants called *Piroti* and *Tairawānī* are cut by the Wanēcis. They are held sacred.

Note on the Grām Devatī or tutelary village deity of Orissa.—By BABU JAMINI MOHAN DAS, Deputy Magistrate, Cuttack. Communicated by the Anthropological Secretary.

[Received 21st June. Read 1st July, 1903.]

In describing the religious practices of the Bhuiyās of Kounjhar, in his "Descriptive Ethnology of Bengal," Colonel Dalton writes: "their private and most frequent devotions are paid to a blood-thirsty tutelary goddess called Thakurani something, generally "Thakurani Mai," in all probability the origin of the Hindu Kālī, for I firmly believe that Goddess with her bloody sacrifices, specially human sacrifices, was borrowed by the Hindus from the aboriginals." This should not seem strange to the student of the Vedās, in which female Goddesses are of comparatively minor importance, and malevolence of the type represented by Kālī is almost unknown. The division of the creative energy into Prakṛiti and Puruṣa and the gradual ascendancy of the former over the latter are matters of history; but the association of the superior half of the energy with a drunken Goddess carrying a dagger for the destruction of human beings, and wearing a garland of their severed heads, is a development which the subtlest philosophical inventions must fail to connect with the original Vedic ideas. The Grām Devatī worship in Orissa has so many points in common with the fetichism of the aborigines on the one hand, and the more refined Sakti worship of the upper classes of the Hindus on the other, that it may almost be regarded as a connecting link between the two.

Throughout the plains of Orissa, every village has a tutelary Goddess, called Grām Devatī or Thākuraṇī. Devatī and Thākuraṇī are used as synonyms, but while etymologically the former represents the original Vedic conception of heavenly beings, the origin of the latter is involved in mystery. In the history of the word Thākuraṇī, or its masculine form Thākura, is probably locked up an important clue to the history of the grosser forms of image worship. The Grām Devatī is generally established under the shade of a tree; sometimes a house is constructed for her protection from the rain and the sun, and sometimes, though very rarely, she has not the protection of even a tree.

The Goddess is commonly represented by a piece of shapeless stone, surrounded by several smaller pieces of stone, also shapeless, representing her children. All the pieces are smeared with vermillion. Carved

images are also met with, though very rarely. They are not uniform in their details, and many of them were probably originally constructed for other purposes. A carved image representing the main Goddess is also commonly surrounded by small pieces of uncarved stone, representing her children. Sometimes the trunk of a tree supposed to possess supernatural properties, like the *Sāhārā*, is smeared with vermilion and worshipped as the village Goddess.

Like the people of the plains, the Gōnds and Sudhās of Āṭhmallik have stones to represent their female village Goddess, but, curiously enough, the Kondhs of Nayāgarh believe their village deity to be of the male sex, and use a wooden post about $2\frac{1}{2}$ feet high to represent it.

Besides the generic name *Grām Devatī*, each Goddess has a separate specific name, which is commonly one of the thousand names of the Goddess *Kālī*. Other names, indicating the nature of the Goddess or her location in the village, are also met with. The following names, commonly given to the *Grām Devatī*, contain the names of *Durgā* or *Kālī*:—*Ambikei Thākuraṇī*, *Bajra Mahākālī Thākuraṇī*, *Burhī Mangalā Thākuraṇī*, *Bata Mangalā Thākuraṇī*, *Bhagabati Thākuraṇī*, *Bateṇvari Thākuraṇī*, *Candī Thākuraṇī*, *Cāmundeī Thākuraṇī*, *Ghata Mangalā Thākuraṇī*, *Hara Candī Thākuraṇī*, *Kālī* or *Kālikei Thākuraṇī*, *lakṣmī Mākālī Thākuraṇī*, and *Sārada Thākuraṇī*. The general idea seems to be that the Goddess is like a mischievous old witch. The adjective *burhī* (old) therefore very commonly occurs. The names *Burhī Jāgulai Thākuraṇī*, *Burhī Mangalā Thākuraṇī*, *Burhiāni Thākuraṇī*, *Sāna Burhī Thākuraṇī* and *Burhī Mājāgulai Thākuraṇī* are commonly met with. It is believed that the Goddesses wander about at night, riding animals; earthen figures of horses, elephants and other animals are therefore placed before them. The following names were apparently suggested by this belief: *Bulā* (wandering) *Thākuraṇī*, *Hastī bāheni* (carried by elephant) *Thākuraṇī*, and *Siugha bāheni* (carried by lion) *Thākuraṇī*. When several pieces of stone are put together, the Goddess is sometimes named *Sāt Bhāunī* (seven sisters) *Thākuraṇī* or *Sāt Poa mā* (seven sons and mother) *Thākuraṇī*. When the Goddess is exposed to the sun, she is named *Kharākhāi* (heat-eater). When she is represented by the trunk of the *Sāhārā* tree, she is named *Sāhārā Sundarī Thākuraṇī*. Some of the other names commonly met with are:—*Andhārūni* (dark) *Thākuraṇī*, *Angakhāi* (body-devouring) *Thākuraṇī*, *Aṣurāni* (demoniacal) *Thākuraṇī*, *Bhuasani* (married) *Thākuraṇī*, and *Raṅgabati* (coloured) *Thākuraṇī*.

The Gōnds and Sudhās of Āṭhmallik name their Goddesses *Pitābali* or *Khambeṇvari*. The meaning of *Pitābali* is not known, but *Khambeṇvari* is probably derived from *Khumba* or post which represents the male god of the Kandhs.

The most noticeable feature of the Grām Devatī worship is the non-priestly caste of the men who conduct it. In the plains, the Bhandāri, Māli, Rāul, or Bhopā is usually the priest. The aborigines select men from their own tribes to officiate as priests. The Sudhās, Sabars, and Gonds call their priests *dekuri*, and the Kandhs call them *jani*.

The worship of the village Goddess is largely supported by small rent-free grants called "*naṣi Grām Devatī*." The land is held by the priest who gets, in addition, daily doles from the rich men of the village, and weekly doles on Thursdays from the poorer people. Thursday, commonly regarded as Lakṣmī day, or the day of the Goddess of fortune, is considered specially auspicious for the regular *pūjā* of the Goddess. The first essential in the *pūjā* is a bath or wash which keeps the Ṭhākurānī cool and well-disposed towards the village. The bath includes smearing with *ghī* and turmeric, and after it is completed, a paint of vermilion is put on. After the toilet is over, a light *bhōg* of fruits and sweetmeats is offered. The daily *pūjā*, including both the bath and the *bhōg*, on a very moderate scale costs about an anna. When provision cannot be made even for this small daily expenditure, the priest contents himself by pouring a little water over the Goddess, and sometimes even this inexpensive offering is dispensed with.

Special offerings of sweetmeats and fruits are made on all festive occasions. On the occasion of every marriage in the village, the Goddess is bathed before the bride-groom or bride takes the last celibate bath called the *bārhuā pāni snān*. After the bath, the Goddess is of course propitiated by refreshments. The worship is conducted with special pomp and ceremony on the Mahāṣṭami or 2nd day of the *Durgā Pūjā*.

The Ṭhākurānī receives special attention on the out-break of epidemic disease. She is supposed to possess more powers for doing or averting mischief than for doing positive good. Within her own village, she is believed not to commit any mischief. Epidemics are supposed to be the work of neighbouring Goddesses, whom the tutelary village Goddess expels by persuasion or superior force, if duly propitiated. The occurrence of a single case of cholera in the village is the signal for "*Ṭhākurānī Mārjanā*" or washing of the Ṭhākurānī. The villagers immediately raise the necessary funds by subscription, and propitiate the goddess by the cooling wash and refreshing offerings. The ceremony is repeated, if the epidemic does not cease.

The ceremony performed on the out-break of cholera is as follows :—A little before dusk the villagers come with music, the materials required for washing the Goddess, and the fruits, sweetmeats, etc., to be offered to her. The priest then washes the stone or trunk representing the god-

dess and smears it with turmeric and *ghī*. The turmeric is next washed off with water, and a paint of hair-scent and vermilion is laid on. If funds permit, a piece of new cloth is purchased and laid as a covering on the *Thākurānī*. This completes the “*Mārjanā*” or washing proper. Incense is then burnt and the *Thākurānī* is garlanded. The Hom or Fire ceremony under the Vedic rules is then performed if the villagers can provide *ghī* for it. The *bhōg*, consisting usually of fruits and sweetmeats, is then placed before the Goddess in three or four earthen pots and formally offered by the priest. Nobody touches these offerings, although the people freely take what is offered to the Goddess on other occasions. The pots with their contents are taken to the trijunction point of roads and left there for the parting evil Spirits. On a moderate scale, this ceremony costs about a rupee.

The people have a peculiar means of knowing the wishes and decrees of the Goddess. In almost every village there is a male or female medium, called *Kālaṣī*, through whom the Goddess communicates with the people. The presentation of a betel-nut is the token of engaging the *Kālaṣī*. Before the appointed time, he takes a purifying bath, puts on a new cloth, and paints his forehead with vermilion. Then, holding two sticks in his hands, he appears before the Goddess, and with dishevelled hair swings his body to and fro. After a time, he begins to tremble, and in the course of his confused mutterings gives out some secrets of the village to win the confidence of the people. He then predicts evil to some and good to others, prescribing at the same time the remedies required in the shape of special offerings to the Goddess and special favours to himself. While going through these antics, the *Kālaṣī* is sometimes offered a fowl, the blood of which he drinks after pulling off the head. The services of the *Kālaṣī* are specially required on the occasion of the Cholera “*Mārjanā*.”

In *Āthmallik*, the aborigines regularly worship their village Goddess only once during the year, in the month of *Aṣārh*; but a special *pujā* is offered whenever an epidemic of cholera or small-pox breaks out. The priest, or *dehuri*, washes and paints the goddess in the same way as in the plains. There is, however, a very curious way of sacrificing animals. Rice, milk, sweetmeats, etc., are mixed up, and small quantities of the preparation are placed separately on *Bel* leaves. The animals to be sacrificed are then brought up, and as soon as they touch the offerings on the *Bel* leaves their heads are severed. The blood of the one first killed is offered in a leaf-bowl, and its heart, roasted over a lamp, is also offered. The blood of the other animals killed is simply poured over the representation of the Goddess. The people then retire after offering pudding and cakes previously made.

The wooden post representing the village god of the Kandhs of Nayāgarh is put up at some central spot in the village and worshipped, ordinarily at harvest times. The priest, called *Jani*, washes the post with water and turmeric, and paints it with vermilion in the usual way. Offerings of milk, rice, spirituous liquor, and the newly harvested crop, are then made; and a fowl is sacrificed. Special *pujā* is offered on the out-break of epidemics, when fowls and sometimes even goats are sacrificed.

Certain village Goddesses in the plains are regarded as “Parama Baiṣṇabis” or devoted followers of Viṣṇu, and animal sacrifices are not allowed before them. Such sacrifices are also sparingly made before the other Goddesses, probably owing to the spread of Vaiṣṇavism. In the *Mahāstamī pujā* and special *pujās* offered in fulfilment of vows, animals are generally sacrificed. Fowls are also let loose before some of the Goddesses by the upper classes of Hindus who do not eat them, and are killed and eaten by the lower classes.

It seems hardly open to question, that this worship of the malevolent Spirit, through the medium of shapeless stone, is an off-shoot of the fetishism of the aborigines. It still includes, though to a restricted extent, the sacrifice of animals, which is one of the most characteristic features of aboriginal worship. The offering of fowls, which are so rigorously excluded from the houses of the upper classes of Hindus, can hardly be said to be anything other than an aboriginal practice. The relegation of the priestly function to the Sudra castes is another link in the chain of circumstances which indicate the aboriginal origin of this form of worship. While the Brāhmaṇ stood aloof, the mass of the people, leavened in their lower strata by the aborigines, adopted the faith which, by its easy explanation of the origin of evils, appealed most strongly to their simple minds. The Brāhmaṇ could not, however, long stand against the popular current which thus set in, and he eventually invented more refined forms of worshipping the same malevolent Spirit. The aboriginal mode of village worship seems thus to have preceded the Paurāṇik rites of Sakti worship, although the present names of the Goddesses are apparently of later date.

SUPPLEMENT.

Resemblance between Ladakhi Folktales and Negro legends.—Babu Sarat Chandra Mittra, M.A., B.L., points out the close resemblance which exists between some of the Ladakhi Folktales about Reynard the Fox published in the Proceedings of this Society for November, 1902, and certain North American Negro legends told by Uncle Remus about the adventures of Brer Fox, Brer Rabbit and Brer Terrapin.

[SARAT CHANDRA MITTRA, M.A., B.L.]

Exorcism in Chota Nagpur.—The following account of a case of “*Jhar Phuk*” or devil driving, which took place at the headquarters of the Native State of Jashpur in Chota Nagpur, has been received from a reliable eye-witness:—

The *dhobi* came running to us saying his wife was seized by a devil, that her teeth had set and that she was talking nonsense. He then went off to call a Muhammadan, who, it was given out, was able to drive away devils. I was very anxious to see this performance, so after the Muhammadan had arrived and was interviewing the *dhobi*, I walked down to the house very quietly and stood behind the door. The scene I saw was this. The woman was lying on a charpoy and her husband was sitting on the ground near her. The Muhammadan and an assistant of his were sitting on the threshold of the door with an earthen pot in front of them. The earthen pot had a charcoal fire in it. Then the Muhammadan started reading out of a book and every now and then he would throw some sort of a powder into the fire which gave out a smell like incense. After five or ten minutes of this he varied the performance by blowing twice at the woman. Then he called out to the devil in her to go away, using all sorts of threats. This did not seem to succeed, so he told the husband to hammer her as by doing so he would frighten the devil in her. This succeeded and the woman sat up on her bed and looked about her in a dazed sort of way. When asked how she felt she complained of pains down her legs. The Muhammadan said this pain was caused by the devil leaving her. After a little while the woman asked for water which was at once given her. Then the Muhammadan said she was all right and that the devil had gone. He remained a short time with them and then went off with his assistant. I met him outside and enquired how the woman was, and he told me the devil had gone off to a big *Pipal* tree some few hundred yards away, where they (the devils) were accustomed to live. I asked him what

power he had to drive out devils, and was told by him that he had read up all about devils and had now got a certain amount of power over them, also that devils were afraid to remain in the same place with a person who knew so much of their habits.

[MR. W. MAUDE, I.C.S., Ranchi.]

The averting of danger from wild animals.—In Chota Nagpur, especially in the Native States one often comes across heaps of stones or, sometimes, of leaves and branches, which have gradually accumulated at places where some person is supposed to have been killed by a wild animal. These are thrown there by passers-by and the belief is, that if any person who passes does not add to the heap, he will sooner or later be seized and devoured by the animal in question.

[MR. W. MAUDE, I.C.S., Ranchi.]

Acceptance of a Muhammadan as a Hindu Saint.—A Musalman named Amir Khan, better known as Amrit Bāva (ascetic), died at Yavatmal, in Berar, on the 11th May, 1902. Born of Muhammadan parents at Adgav, in the Darva Taluka of the Vani District, he began worshipping Dattatraya; he was punished for so doing by his father, during his childhood, but persisted in his adoration of the Hindu gods after he came of age. He died in the house of a Raṅgāri Dalāl. The day after his demise Muhammadans and Hindus both claimed his body, for burial and cremation respectively, but the Hindus prevailed and his remains were carried on their shoulders by Brāhman, and disposed of according to the tenets of the Hindu religion. It is well-known that the touch of a Musalman pollutes even the water a Brāhman has stored for his bath, and that a Brāhman will refuse to perform even marriage and other "clean" ceremonies in the house of a Čadra, but here is an instance of Brāhman not only touching a Musalman's dead body, but undertaking, nay claiming, the right of performing his obsequies. The Patel of Yavatmal has granted in perpetuity a *bigha* of land for the tomb, and it will not be long before Hindus and Muhammadans will worship the Bāva with equal fervour. He is said to have performed a few miracles, which, however, can only be called so out of courtesy to the undeveloped intellect of his admirers.

[MR. B. A. GUPTA.]

The philosopher's stone.—At pp. 193-4 of his Popular Religion in Northern India, Mr. Crooke quotes a couple of cases of the transformation of iron into gold. Both these cases are from Western India, but Mr. C. A. Silberrad has brought to my notice an example from the United Provinces. The ruined fort of Deogarh stands high on a cliff

over-hanging the Betwa, in the Lalitpur sub-division of Jhansi, and the philosopher's stone was kept there in a temple. When the fort was taken, the stone was thrown into the Betwa by the priests and the conqueror tried in vain to recover it. The story quoted by Mr. Crooke omits to mention that the chains which were turned to gold were being used to drag the river, being pulled by elephants on either bank, in an attempt to get the stone.

[MR. R. BURN, I.C.S., *Supdt. of Ethnography, United Provinces.*]

Fortune-telling amongst the Bundijas.—The Bandijas are a Muhammadan tribe of cowherds and camel-keepers who live in the Hhab valley in Baluchistan. They claim, without much apparent reason, a descent from the Kalmati Baloch, but some sections are said to trace their origin to the Samras of Sind; the name of one of these sections, Rādhānī, may point to an old claim to be the offspring of Rādhā, Krishna's favourite mistress, or to their being bastards,* but at the present time they detest Hindus and disclaim all connection with them. Instead of using grains of wheat, as in India, divination is commonly performed with the aid of shreds of the leaf of the date palm, which are knotted and thrown on the floor by the fortune-teller, after invoking his *pīr* or familiar spirit. The answers to questions are indicated by the number, position and character of the knots. Odd numbers are regarded as lucky and even ones as unlucky, while as regards shape, the formation of a triangle, the symbol of the *yoni*, is held to be most auspicious.

[MR. B. A. GUPTA.]

Traces of fraternal polyandry amongst the Santāls.†—Among the Santāls, the wife of a younger brother is treated most deferentially by the elder brother. To quote a familiar saying "the *Bokot bahu* (younger brother's wife) is like a *longa* (god)." From the day of her marriage, when the *bokot bahu* catches the elder brother round the ankles and demands a present (a ceremony known as *Katkom*),‡ the *bokot bahu* and the elder brother must never so much as touch one another. The relations between them become very strict; they can-

* The word *Rādheya* is used in this sense as a term of reproach because *Rādhā* was not regularly married. [*Rādheya* means "born of *Rādhā*" and *Rādhānī* means the same thing.]

† These notes may be compared with Mr. Earle's account of polyandry amongst the Bhotias which will be found in Appendix V. to the Bengal Census Report for 1901. (Ed.)

‡ The literal meaning of *katkom* is "Crab," which is supposed to indicate the firmness of the girl's grip.

not enter the same room or remain together in the courtyard unless others are present. Should the *bokot bahu* come in from work in the fields and find the elder brother sitting alone in the *raca*, or courtyard, she must remain in the village street or in the outer verandah of the house till some other people enter the house.

The *bokot bahu* cannot usually sit down in the presence of the *dadat* (elder brother) and it is absolutely improper for her to take a seat on a *parkom*, or bed, while he is close at hand. Should it be necessary for the *bokot bahu* to sit down while the elder brother is close by, she must use a *gando*, or low stool. She can never loosen or comb her hair before the elder brother. To do so would be considered highly improper and would imply that the relations between them had become much too familiar.

The intercourse, on the other hand, between the elder brother's wife (*hili*) and the unmarried younger brothers is remarkably free and easy. They can flirt and jest together quite openly, and until the younger brothers find suitable helpmates of their own it is not improper for them to share their elder brother's wife, so long as they respect his dignity and feelings and do not indulge in amorous dalliance in his presence. Subject to this condition the elder brother and the village community do not consider that the matter specially concerns them. Santāl women often complain that their husbands' younger brothers are carrying on intrigues with other girls when they can get all they want at home.

When an elder brother dies, his widow very frequently takes up her abode with one of the younger brothers as a kind of elder wife, and this almost invariably happens in cases where the widow has been left badly off. This relic of polyandry is not confined to the Santāls or to tribes low down in the social scale. It is common to Goālās, Kalwārs and to some septs of Rājputs.

The relations between husbands and their wives' younger sisters (*cruel kuriko*) are perhaps even less restricted, and it is considered quite legitimate for a man to carry on an intrigue with his wife's younger sister, provided the damsel is agreeable, the only stipulation being that if she become *enceinte* her brother-in-law (*tenay*) must take her to wife permanently. Santāl wives are usually frantically jealous, but they seldom fail to tolerate, and have been known to encourage, improper relations between their consorts and their younger sisters. It is often urged as an excuse for the practice that the latter are thus kept from going wrong with other young men.

The improper relations usually cease when the younger brothers and younger sisters get married. They are moreover limited very consider-

ably by the natural temperament of the members of a family. All elder brothers do not submit tamely to their wives being enjoyed in common; all wives are not complacent, nor do all younger brothers and younger sisters conform to what is asked of them. Families often become divided in consequence of an indulgence in these practices, but the fact that they are recognized and form a part of the social system of the Santāl is incontestable.

It is not usually known that a Santāl nucle (*kumay*) is permitted a good deal of freedom in his intercourse with his wife's nieces (*kumay kuriko*). A *kumay*'s flirtations are the subject of continual jesting, and the expression "*kumay rava jog*" (sweeping the uncle's courtyard) has almost passed into a proverb. The meaning of the expression is easy to guess and I must not outrage delicacy by explaining it.

In conclusion, and by way of apology for the Santāls, I would only note that these immoral practices are common to a number of other castes in Bengal.

[MR. C. H. CRAVEN, *Assistant Settlement Officer, Dumka.*]

A Santāl's wife is common property with him and all his younger brothers as regards conjugal relations, even after the younger brothers marry for themselves. Similarly, a Santāl woman's younger sisters legitimately share without marriage all her conjugal privileges with her husband. The above relations were quite common 35 years ago, and are still in vogue, though they are perhaps not quite so openly indulged in now.

[REV. L. O. SKREFSRUD, *Sonthal Parganas.*]

The Thāṭheras as Landholders.—Mr. W. Crooke, in his article on Thāṭheras, quotes from the Oudh Gazetteer I, 22, 221 *et. seq.*, 270, 275 and the Hardoi Settlement Report, 75, 85, 100, 165, 227, the tradition that the Thāṭheras held large tracts of land in the Hardoi District before the Muhammadan conquest, and were dispossessed by the Rājputs. After quoting speculations that these Thāṭheras were really Bhars or Thārus, Mr. Crooke says that we really know nothing as to the people who are referred to.

It appears to me not improbable that Thāṭhera is a correction, by popular etymology, of Thāṭhar, a caste mentioned in the Ain-i-Akbari as inhabiting Mahāl Todah Bhim,* Sarkār Agra, Mahāls Umrā Umrī, and Pūr,† Sarkār Tijārat, and Mahāl Pahāri‡ in Sarkār Sahār. Colonel Jarrett§ identifies the Thāṭhars with the Gujars converted to Islam,

* Jarrett's translation II. 183.

† Jarrett's translation II. 193.

‡ Jarrett's translation II. 195.

§ Jarrett's translation II, 183 note (1).

referred to by Elliott* as Thatthar. Muhammadan Gujars are still found east and north of the Jumna, especially in Rai Bareli and Sultanpur, and in smaller numbers in Gorakhpur. No sub-division of Gujar with a name approaching Thatthar was found in these Provinces in 1891, but there was a division of Rājputs called Thatther which may possibly preserve the name. While artisans occasionally hold shares in villages, it is certain, as implied by Mr. Crooke, that the old landowners of Hardoi were not braziers. At the same time, there is need for more enquiry, before we can decide whether the Thatthars were Gūjar or Rājput. In particular, Elliott says that the name Thatthar was given on conversion, and its meaning seems worth finding. The so-called Thattheras of Hardoi were ousted before the Muhammadan conquest, but it is quite possible that the nickname is a word also used without reference to this.

[Mr. R. BURN, *Suppl. of Ethnography, United Provinces.*]

Dravidian and Kolarian place names in Mirzāpur, Shāhābād and Gayā.—I have examined the maps of the district of Gayā, Shāhābād and Mirzāpur, but I have found only a few names of villages, rivers and hills which seem to be of Kolarian and Dravidian origin. According to their traditions the aborigines of Chota Nagpur formerly occupied those regions. The Cheros claim to have been the dominant tribe among them, and the Orāons to have been in the possession of Rohitās at the time of the Muhammadan invasion. There are besides in the Shāhābād district the ruins of buildings which are ascribed to the aborigines. Moreover, there are still from ancient times the remnants of these earlier settlers—the Cheros, the Orāons (Dhangar) the Kharwārs, Māls, Mūsahārs, Kols, etc.,—some of them speaking still their own languages.

It would be interesting, indeed, if to these incidents the proof of an earlier settlement of the Chota Nagpur aborigines in those districts could be added from the names of villages, rivers and hills being Kolarian or Dravidian respectively. It is, however, extremely difficult to adduce such a proof from the examination of the map only; an investigation of this matter on the spot would give more satisfactory and reliable results. Such an investigation should include questions as to the existence of demon-worship in a given village; as to the right of propitiating the village demon; with whom it rests; whether there are marks of relics of the dead having been deposited; whether there are sacred groves. These questions being ascertained, the investigator might proceed with more confidence in examining names; without such local

* Memoir of the races N.-W.P. 1-101. The letter "t" is not marked as cerebral.

investigation it amounts almost to mere guessing if we endeavour to trace the names of villages to their original sources, because the changes which such names undergo in the mouth of foreigners are sometimes extraordinarily great, and transliteration of such names is frequently simply confounding. An instance may be adduced of either of such cases. *Kurkhi* is the Dravidian name for a settlement, meaning fence, "homestead." Hindus are not able to pronounce the guttural "*Kh*," hence the name is pronounced by them *Kurki* or *Kurgi*. The surveyor in putting down this name on his sketch, writes *Kurkee* or *Kurgee* or *Koorkee*, also *Gurjee*, etc.

Owing to these difficulties it is with much reluctance that I give underneath a list of Kolarian and Dravidian words found in the maps of the above-named districts, and though this list comprises only a selection made out of a somewhat large number of similar names, still I would not be surprised if they could not stand the test of a local investigation, or the light of more comprehensive knowledge of the different languages concerned than I can command.

As Kolarian names I would point out all those which end in *da'a*-water, written *dā* or *däg*; the latter for this reason that a Hindu cannot pronounce the hiatus in the word "*da'a*," hence he pronounces it "*dā*" or "*däg*": *Barandā*, *Karaundā*, *Marsādā*, *Semardā*, villages in the *Mirzāpur* district; *Nemoorda* (*Nimurdā*), *Koondā* (*Kunda'a*) *Dholdag*, *Godag*, *Oldag*, *Pasundag*, *Muṇḍādäg* etc., village-names in the *Shāhābād* district; *Khukhimdā*, *Pundā*, etc., in the *Gayā* district.

Words ending in *gārā* I would also consider to be of either Kolarian or Dravidian origin; in the latter the correct spelling would be "*khār*" *qārā* and *khār* meaning river. Thus we find in the *Mirzāpur* district, *Bargara*, *Korgara*, etc. In this district there is a village of the name of *Damudar*, which seems to be identical with the name of the sacred river of the *Santāls*. Some people pronounce it *Damuda*, and hence Col. Dalton was of the opinion that its meaning is "the water of the *Muṇḍā*," *da'a Muṇḍā*. I am rather inclined to think that the former spelling is the correct one, *Damudar* or *Damodar*—*da'a* (water) *odar* (water); see the Sanskrit and Greek form, the *m* being euphonic. In olden times this river may have been called simply *da'a*-the water; when the Aryans arrived they added "*odar*," hence *Daamodar*.* Other Kolarian village-names are: *Patorkolom*, from *pathar* (H. stone) and *kolom*, threshing-floor. *Sobārī*, from *so* or *soso*-tamarind-tree and *bārī*, H.; *Biurā* (*Becoora*) a fence; *Ara*, old, *gooloo* and *gutu*, small; *Kuluarī* = *Kulu* = *Kol*, *ārī*, settlement, etc., etc.

As Dravidian words might be pointed out the following: *Pachokh-*

* Cf. *Di-chhu*, where *Di* is the Bodo, and *chhu* the Tibetan name for river. (Ed).

rā, from *pachcho* = the god, *des* and *okra*, the seat. Gurgi = *Kurkhi* = fence, Doomri, Dumri, = *Dumbari* = fig-tree. Khukhalsorā = *Khukhrā*, is also a village name and even the name of the principal Pargana in the Ranchi district, in which the Orāons have chiefly settled. *Ukree*, *Ukhrī*, rice mortar. *Urthoo* and *Urda* have the same meaning, *viz.*, satiation. Orāon village names frequently end in *atā* and *ta*, the possessive case denoting connection with a locality; these too are found in the three districts spoken of, *e.g.*, Umaita or Umhetā; Bukta or Bukantā; Kohartha, Kohartā, etc. Thothā, naked; Koortha, (*kurtā*); Lorokāree (*Laukāri*); Adhreorā (*adheorā*); Kheree (*Khiri*); Kopa (*khopā*); Chilkur or Chalkur are all genuine Dravidian village names. Also Beree or Bīrīn, queen; Krigura, the name of a sept, etc. The ending *ambā* is frequently found in Orāon village names, the meaning being water-mouth or spring; thus Korambā = warm water spring, Pachambā = the old water-spring, kitambā the foul water spring, etc.

There appear to be no names of rivers or hills which might suggest a Kolarian or Dravidian origin, unless the Pūnpūn be reckoned as belonging to the latter. It would mean an ornament or necklace in Orāon. Then again there is the Darra-hill; as the principal god or demon of the Orāons is supposed to be a hill-god, it would not be impossible if a special hill had been named after him.

[REV. FRID. HAHN, *Purulia*.]

Garo Wedding Chants.—The two Gāro wedding chants which follow have been received from Major Gardon, Superintendent of Ethnography, Assam, who obtained them from Messrs. Boggs and Phillips, American Baptist Missionaries. The last mentioned gentleman says that the language is not pure Gāro. Mr. Boggs says the Gāros believe that they originally came from Nonoi Nengkachot, which they locate in Tibet; and Major Gardon suggests that possibly the archaic forms in these two chants may reveal some relationship closer than that already known to exist between Gāro and other Bodo languages and also, possibly, Tibetan.

GARO WEDDING CHANT. (1).

(Chanted by the relatives of the bride on the occasion of their going to the home of the groom to bring him to the home of the bride.)

NOTES.

1. Atjo! anga, atjo!
Imma! anga, imma!

“Atjo” and “imma” are exclamatory words to call attention to what the chanter is about to say.

“Anga” = I.

2. Tongrengma Nanggilwaniko.
The one from Tongrengma
Nanggilwa (we praise).
3. A ani bri chao a chao,
(As) on earth's highest mountain
summit,
Bolni kambe batao bol chuo.
(As) on a tree that overtops
other trees.
4. Mani gitchu jilanan,
Than all aunts' reserved ones.

Chamedirang patanan.
Than all that the marriageable
ones have clothed (he is better).

5. Jā ching enok enoknan,
Than (a cock) with full-grown
spurs,
Kime gongot gonggotnan.
Than (a cock) with a long arch-
ing tail (more beautiful).
6. Gisikwatako knae,
The far sounded cock's crow
hearing,
Roe salako masie.
The long-drawn-out crowing
comprehending.
7. Manga chipbimrongrongan,
Beautiful of body,
Sireng jā sirengrengnan.
Perfect in foot and hand.
8. Skanguin apani bā a,
(Like as when) his father

"Tongrengma Nanggilwa" sup-
posed to be the village of the
groom.

As a person on a very high
mountain, or on a very high tree
that overtops other trees, gets an
unobstructed view, so this
young man's good qualities are
conspicuous to all.

"Mani" = mother's elder brother's
wife. When the uncle dies she
marries the nephew.

"Jila" = To keep for one's use
or pleasure.

"Chame" = Any person whom
one may lawfully marry is his
or her "chame."

The uncle chooses the nephew who,
in case of his death, is to marry
his widow and adopts him into
his family. Being in the family
the aunt provides him clothing,
etc.

As one hears a cock's crowing to
a great distance, and as the long-
drawn-out crowing of a cock is
pleasant to hear, so the wisdom
and skill of this young man is
known abroad.

Praising him for his fair body.
One kind of white ants is very

first carried him on his back,
 Chengonin kindikui dima.
 (Like) white ants when they
 first come out of the nest.

9. Tori ā ning, a-a-a, tosi chining.

10. Chelo ā mong nonge,
 On the breast dust smearing,
 Ki me saljolue,
 His tail dragging along,
 Champe jā rebaa, rematch-
 rubbaa.
 Creeping along they came, like
 a civet cat they came.

11. Nola wā tesa kaakon,
 (His) abode of wā tesa made,
 Gring sonao patakon.
 In a cage of gold provided for.

12. Mani gitchun jilakon,
 Of all aunts' reserving care,
 Chamedirang patakon.
 Of all marriageable ones giving
 of clothing (he has received).

13. Nola rurunakjok,
 The nol is to be torn down,
 Gisol pranakjok.
 The stable is to be broken open.

14. Purakosa on ataibo,
 Some pounded rice simply give,
 Miksipkosa galataibo.
 Some broken rice simply throw
 down.

delicate in colour. So this
 young man is beautiful.

"Tori ā ning," "tosi chining" =
 the bride's relatives,—older
 brother, maternal uncle, etc.

The a-a-a is simply for euphony.

This refers to the shamefacedness
 and diffidence of the relatives
 of the bride when they came
 to the young man to propose
 the marriage.

The figure is of a civet cat creep-
 ing along towards its prey.

Nol = Any house in which domestic
 animals are kept, as a stable,
 etc.

Wā tesa is a kind of bamboo with
 which the Garos do specially
 fine bamboo work.

The stanza is in praise of the
 young men's house in which the
 groom lives.

I. e., He has received favours
 equal to what all aunts and
 marriageable ones show to those
 whom they purpose to marry.
 See stanza 4, note.

As the place where a domestic
 animal is kept is torn down and
 the animal led away, so the
 young man is to be taken away
 from the mother's house.

The figure is of giving some pound-
 ed and broken rice to a fowl
 when it is to be taken to a dis-
 tant place. It refers to the
 groom's parents giving food
 for the journey to the bride's
 home.

15. A song Koasio, chiga Mindrio,
 In the country of Koasi, by the river Mindrio,
 Gisik watengchina, roe sakengchina.
 Let him make his crowing heard afar, let him give forth a long-drawn-out crow.
- The country Koasi and on the bank of the river Mindri is supposed to be the home of the bride. The sentiment is, let the groom become famous there for his wisdom and skill.

GARO WEDDING CHANT. (2).

- | | |
|---|---|
| Songdu chi nalsachi | The older brother also ascending, |
| The Brahmaputra river to—beyond. | Sing chawari niowa |
| Sagal apatsachi | When proposing he enquired |
| To—the sea beyond the land (going) | Sing nok-pante rooa |
| Nokpantenggipako | When proposing they sat in the young men's house. |
| The dweller in the young men's house. | Skang niksogimin |
| Jamsi rengenggipako | The previously found one, |
| The one who sits in the veranda, | Meja mansogimin |
| Ako tonannike | The formerly discovered one |
| Him admiring | Singre mea |
| Uko tomikchae | They proposed |
| Him choosing | Balingtirako. |
| Singre mea | They bore the message. |
| He asked, | Japing name bokako |
| Balingtira. | The thigh very white, |
| He bore a message. | Sokme onkutokako nikenba |
| Mikcha namuikenba | The breast, the nipple |
| Having admired (and) chosen (him) | Oba mikchasojojna |
| Ogitona aganjokna | having seen |
| To—(her) maternal uncle she spoke they say. | Her I at once chose said he, |
| Mamatangna aganjokna | Oba namniksojok |
| To—(her) mother's brother she spoke they say. | Her he at once was pleased with. |
| Ogitoba reange | Indakenba |
| The uncle also going | Having done thus |
| Adatangba daunge | Walman chiatihana |
| | A night he appointed they say |
| | Sal dik katahana. |
| | He made short the time they say. |
| | Walman chia sokowa |

The appointed night when it arrived,	Her aunt's husband pulling along with her,
Sal dikka ongowa	Saritangko giting mingce [calling,
The shortened time when it was fulfilled	Her sister-in-law a pipal tree
Kne mikkang Barangue	Chratangko doma chane
(His) hair he smoothed back	His relatives (to be) very numerous claiming,
Mikkangko	Jari jasokbaenba
From his face.	Having journeyed on
* Sime nachil Tongjang nachilko	Kawatangui dringona
Sime beautifying her face	To her husband's room
Kawatangna nannikhehina	Kimatangni nokpantena
Her husband to please,	To her betrothed one's young men's house
Ogitoko rimbite	Jare jasokanga.
Her uncle taking with her,	They arrive.†
Pajongtangko salbite	[MAJOR P. R. T. GURDON, I.A.]

Can spirits touch the earth ?—It has been stated that it is a Hindu belief that spirits of the dead must not touch the ground, and various customs have been referred to as bearing out the statement. There appear, as a matter of fact, to be no beliefs concerning the physical nature of such spirits, except those of Brāhmanical origin, based on the Hindu religious texts. This short note is intended to point out firstly, that the statement that spirits of the dead cannot touch the ground is contrary to orthodox Hindu teaching; and secondly, that the popular customs referred to such a belief were not, whatever their actual origin, initiated owing to any superstition as to spirits, and that they are not now associated with any such superstition in the mind of those who adopt them.

According to the Brāhmanical belief the spirit of a deceased person, after death, has a gradual development similar to that which takes place in a human being. This development is only possible when the ten *piṇḍas* enjoined by the ordinances of Hindu religion are duly offered by the proper relative of the deceased. The first nine are offered on the nine successive days after the death, and the tenth on the last day of the *çrāddha*, which varies for different castes. While making the offerings the mourner utters the following invocation to the spirits:—

“Akāçastho nirālambo bāyū bhuto niraçrayaḥ
Idaṁ nira midam kṣīra matra sthāhi idaṁ piba.”

* Sime, the wife of a former king, who on her bridal day beautified her face. So they call the bride by this name.

† This is, I am told, is only a smaller part of the hymn: I have not been able to obtain the missing portion. P.R.G.

“ You remain in ether : you have no seat, your body is like air ; you have no habitation. I offer this water and milk ; do you bathe in it and drink it.”

These piṇḍas make to the spirit's being the following contributions :—

- 1st. Head.
- 2nd. Ears, eyes and nose.
- 3rd. Neck, shoulders and breast.
- 4th. Stomach and other organs.
- 5th. Thighs, legs and feet.
- 6th. Marmma a vital organ (organs which if disturbed would cause loss of life).
- 7th. Veins.
- 8th. Teeth and hair.
- 9th. Biryya, semen.
- 10th. The complete body.

Till the tenth piṇḍa is offered the spirit's existence is incomplete. Before that time it finds a difficulty in coming down to the ground ; and for this reason water and milk are offered in the air. The same practice is observed on the birth of a child, as being similarly necessary to its development. Mediums say that spirits have said to them—“ I am yet like a baby.” The spirit of a certain Deputy Magistrate (whose name my informant was unwilling to disclose) is reported to have said—“ I am yet like a baby here. Persons who have been sent to jail, I see much better than myself.” So far, in fact, from spirits not being able or not being allowed to touch the ground according to Hindu belief, it is customary for an urn containing the ashes of the deceased to be put under ground under a Tulasi plant or in some sacred place. Over the urn is placed a pot with holes in it through which water is poured for the spirit's benefit. When bones after cremation are hung up in a tree on their way to the Ganges, and are not allowed to touch the ground, this is solely in order to avoid any pollution that might otherwise occur by the ashes being placed in a spot which is, without the bearer's knowledge, impure.

Hindus are actually directed to offer their piṇḍas on the ground. Brāhmanas at the time of *śrāddha* and every day when they bathe repeat : “ Those friends who are not cremated and those who are cremated, be they satisfied with this *piṇḍa* offered on the ground and water. (Anikatortta Raghunanda). Compare also Viṣṇu Purāṇa, Part III, Chapter 13.

Dātabyo' nudinaṃ piṇḍaḥ pretāya bhūbi pārthiba.

“ Every day *piṇḍa* for the spirit should be offered on the ground, O King.”

For some time after a death a vessel full of water is kept in a tree; an explanation has been offered that this is so placed for the spirit's use because he cannot touch the ground. This practice does not, however, appear to be connected with any belief in spirits. Water is one of eight auspicious things, the list being Brāhman, cow, fire, gold, *ghṛ*, sun, water, king. It is similarly hung up when a child is born.

In certain cases persons are enjoined to sleep on the ground, *e.g.*, a man on a pilgrimage, and a newly-married couple for 3 nights after marriage. It has been suggested that this is in order to avoid risk of harm from evil spirits. With regard to the first injunction, Hindu texts lay down that there are five classes of persons, none of whom are purified by going to shrines or on pilgrimages.

Lubdha :—He who tries to get others' money by unfair means.

Piṣumya :—He who tells things to others for mischievous purposes.

Ākrūra :—He who gives pain to animals unnecessarily.

Biṣayātyaka :—He who is overmuch attached to enjoyment.

Nāstika :—He who disbelieves in the after-world and God's supremacy.

For this reason a man going on a pilgrimage may take no luxuries, and must live the life of an ascetic. As for the second case, marriage is to a Brāhman girl what the sacred thread is to a boy. During the time of learning sacred books a Brāhman boy is ordered to sleep on the ground and to enjoy no luxuries; similarly, the bride and bridegroom are ordered to sleep on the ground for the girl's religious benefit. Marriage is looked on as part of a religious duty and not for the enjoyment of the parties. These last customs are therefore ordained by Hindu Scriptures as ascetic practices for the religious benefit of the performer. It is possible, that they may in their first origin have been connected with some form of veneration of the Earth Mother (see Mr. Gait's Bengal Census Report for 1901, para. 344), but there appear to be no grounds whatever for associating them, even in popular belief, with any idea of either propitiating the spirits of the dear departed or of avoiding the malignant ghosts of those who have died a violent death.

[MR. H. F. HOWARD, C.S.]

The origin of the GOTRA and other sections now usually exogamous.—There is no doubt that exogamy is, at the present time, the most prominent feature alike of the totemistic and other sections of the non-Hindu tribes, and of the *gotras* of orthodox Hindus; but this circumstance does not necessarily imply that either or both divisions were originally formed with the object of enforcing exogamy. The primitive clan is regarded by some as indicating an ancient social condition when there was no such

thing as marriage, when the family, as now understood, was not recognized, and when there was scarcely any thought of determining with precision the degrees of consanguinity of individuals. In this connection it is a significant fact that amongst many tribes, such as the Orāons and Nārās, although marriage between persons of the same clan is forbidden, pre-marital communism is freely allowed.* This may possibly be a survival of a time when all the women of a clan were common to all the men, and a man could claim an exclusive right only in women whom he himself might procure, by capture or otherwise, from outside the limits of the clan—*i.e.*, by exogamy. A pretence of capture is still an essential feature of the marriage ceremony amongst many of the wilder tribes.

The section or *gotra* of the Hindus seems to have no connection with this primitive state of things, nor is there any clear evidence that it, any more than the tribal sept, was devised in order to obtain a means of enforcing exogamy. Many of the lower castes in Bengal, such as the Rājvarṇi, Dāoyāi, Dhimar Ganrār, Bāiti, etc., have only one *gotra*, which can, of course, have no effect on marriage. The same is the case in Assam, where Kāçyapa is the only *gotra* of many castes in the Brahmaputra valley and Alimyan in the valley of the Surmā. It is said that such *gotras*, meaningless as they are from the point of view of marriage, have been borrowed from the Brāhmanas, but although this may be the case, further investigation seems called for, not only to prove or disprove the fact of the imitation, but also to show whether or not it was taken for any other purpose than that of regulating the matrimonial arrangements of the caste. Where castes, other than Brāhmanas, have subdivisions known by the name of a Vedic Ṛṣi, it is said that he was the *Guru* of the ancestors of the subdivision. There seems, however, to be no reason why the descendants of persons having the same priest should not intermarry. They are not necessarily consanguineous and the sub-divisions would, therefore, seem originally to have had some other meaning. The same observation applies to eponymous groups of the Rājput type, which are named after some chief who clearly cannot have been the progenitor of all his followers, and also to territorial groups. As observed by Mr. J. D. Mayne, it often happens in India that the mere fact of association produces a belief in a common origin, and the existence of such a belief does not of itself prove anything. In

* In a recent article on totemism, Mr. J. W. Powell says of the American Indians: The exogamic group is always the incest group; this group is the clan of savagery, and it is the gens of barbarism. While in theory it is consanguineal, in practice it is often something more. Persons are included in the group by adoptions (Man, July 1902).

the case of the Goālās the eponymous group does not always constitute a bar on marriage, and in East Bengal they marry within the *gotra*. In Orissa intermarriage between members of the same *gotra* is strictly forbidden only in the case of Brāhmaṇs. In Mārṇār, the Puṣkarṇa Brāhmaṇs marry within the *gotra* so long as they avoid a family with the same *kuladevī* or family deity. So also in Garhwāl, the Brāhmaṇs of each *gotra* are not strictly exogamous. As already mentioned there are various sub-divisions which have no effect on marriage, or which affect it only in so far as they determine the rank of the parties and the consideration to be paid by one side or the other. It has been pointed out in the Bengal Census Report for 1901 that restrictions on marriage spring up very easily in India, and the fact that such restrictions now exist in respect of certain sub-divisions does not necessarily prove that they have always done so.

Sometimes persons bearing the same family name, and therefore presumably of the same origin, belong to different *gotras*. Thus amongst the Vaidyas there are Senas of the Dhanvantari *gotra* and Senas of the Kāçyapa *gotra*. A Sena of the former may marry a Sena of the latter. Amongst the castes where exogamy based on the *gotra* is strictly observed the *gotrāntara*, or transfer of the bride from her father's to her husband's *gotra*, is an important part of the marriage ceremony. The death of an unmarried daughter renders the father impure for a certain period, but not so the death of one who is married, as she no longer belongs to his *gotra*. At the same time a married daughter is rendered impure, though for a shorter time than an unmarried one, by the death of her father: she can also, under certain circumstances, perform his *grāddha* and inherit his property.*

In the recent Baluchistan Census Report, Mr. Hughes-Buller shows that amongst the races of that province the tribe is split up into numerous groups and sub-groups, and that although their divisions are usually eponymous, the eponym is not necessarily that of a common ancestor, and that common good or ill, or in other words, common blood-feud, is the underlying principle which unites a tribe, although the conception merges into the fiction of common blood, i.e., connection by

* Allied to the *gotrāntara* of Bengal is the Punjab practice of *gotkunālā* or tribal trencher, which is a ceremonious meal eaten by the women of the family with the bride and which admits her into their society. In the recent Punjab Census Report Mr. Rose concludes that this was formerly a rite intended to admit the wife into her husband's kin, though it is now merely a social usage. There are some castes in the Punjab where the wife does not change her *got* on marriage. When the wife enters her husband's *got* the effect seems to be to prevent her remarrying in that *got*. If so, it would be interesting to ascertain whether the custom of *gotrāntara* is observed in Bengal amongst castes which allow widow marriage.

kinship. The clan has no connection with marital restrictions, and amongst the Biloch and Brahui tribes marriage within the clan is the rule.

The present practice amongst the tribes of this wild frontier may possibly represent what was the state of things in India, amongst the Rājputs at least, in less settled times, and it is possible that the prohibition on marriage within the clan has developed amongst the Hindus from the gradual growth of the belief that all members of a *gotra* are of common descent, *i.e.*, that the clan is the *raison d'être* of exogamy, and not exogamy of the clan, and that although exogamy is now the main feature which preserves the distinctions of the clan or *gotra*, it was originally formed for quite different purposes, the object of which may have now disappeared. The Khāsis of Assam are divided into clans and sub-clans. The former being exogamous there is no meaning attached to the sub-clan, so far as marriage is concerned, and there must, therefore, be some other reason for its existence. The same remark applies to the minor sub-divisions of the Maithil Brāhman—*muls* and *dihs*—which involve no restriction on marriage. Bengal Census Report for 1901, paragraph 428). Even with ordinary Brāhman, it is the *pravara* rather than the *gotra* which constitutes a bar on marriage.

In these circumstances it seems desirable to examine more closely these minor sub-divisions of caste and tribe, and to endeavour to trace the existence, past or present, of other characteristics besides the one now most prominent, *viz.*, exogamy. It is also desirable to note the occurrence of sub-divisions, such as those mentioned in the last paragraph, which, though of the same pattern as the exogamous sub-divisions of other communities, either do not involve any restriction on marriage, or are endogamous and not exogamous. If it could be shown that the same eponymous or totemistic group is sometimes exogamous and sometimes endogamous, it would go far towards proving that it arose independently of the restrictions on marriage which subsequently clustered about it. The whole of the Mallik caste of Manbhum has the same totem, *viz.*, the Patrishi or Paradise fly-catcher. There are two sub-divisions of Bāgdi (Kuṣmetiā and Tentuliā) which, though apparently of totemistic origin, are endogamous and not exogamous. In Mārwar certain eponymous groups of Brāhman are similarly endogamous. In the United Provinces the Kāyasthas are divided into twelve endogamous sub-castes all of which are eponymous.

Arrangements have been made in Bengal to investigate the subject by taking for each district eight or nine castes which are locally numerous (both high castes and low) and, having ascertained their

sub-divisions from the Tribes and Castes of Bengal and other sources by enquiring as to—

- (1) Meaning and origin of term. Very full enquiries have been enjoined, in the case of apparently eponymous groups, where the eponym is a Vedic Ṛṣi, and especially where there is only one such group in the caste. Where Kāçyapa is the only *gotra*, it may be that the word refers not to the Vedic Ṛṣi, but to the tortoise which may formerly have been the tribal totem.
- (2) Restrictions, if any, on marriage involved by it; any reasons assigned for the same. Are they absolutely rigid?

N.B.—The Sikkim, Bhotias and Tibetans are divided into clans said to be exogamous, but Mr. Earle says the rule is not always enforced if the parties are removed by seven or nine degrees of relationship. Mr. Lister has mentioned a case where a Mundā took a wife within his own clan.

- (3) Other ideas connoted by it.
- (4) If totemistic, the extent to which the totem is taboo; religious ideas and practices connected with the totem; belief as to connection of totem with founder of clan, if any.
- (5) Extent to which the clan or other exogamous group is fixed. Can a man change his clan by adoption or otherwise, e.g., if a man of exogamous clan A wishes to marry a woman of the same clan, can he effect his object, otherwise unlawful, by the adoption of himself or the lady into clan B? What happens (in the cases of tribes where pre-marital communism is allowed) if a woman becomes *enclave* by a man of her own clan? Are there cases where the rule of exogamy is broken through? If so what is the penalty?
- (6) Does the woman change her *gotra* or clan on marriage? If so, is there any special ceremony and what is its effect? Can she in such cases remarry (a) at all, (b) within the clan or *gotra* of her first husband?

[MR. E. A. GAIT, C.S.]

The Brāhmanical GOTRA System.—It is commonly said that the Brāhmanical rule of exogamy is based on the *gotra*, i.e., that a man of any given *gotra* may not marry a woman of the same *gotra*, but the real restriction is considerably wider. A man is not only forbidden to marry in his own *gotra*, but he must not marry a woman whose *gotra* has the same origin as his own. A book has recently been published by the Mysore Government* containing a collection of the literature of the

* The principles of Pravara and Gotra by P. Chentsal Rao, C.I.E., 2nd Edition, 1900, printed at the Government Branch Press, Mysore.

subject as found in the Sūtras of Aṣvatāyana, Aṣṭamba and Baudhāyaṇa, the Matsya Purāṇa, and the exegetical works thereon by Puruṣotama, Kamalākara, and Abhinava-Mādhavācāryya. The following notes are based on the information given in the Introduction.

The author is of opinion that all the twice-born castes are descended from four of the seven eminent Ṛṣis who were sons of Brahmā, and that the existing caste distinctions amongst them sprang up gradually at a later date. Even after these distinctions were recognized they took long to acquire their present rigidity, and in ancient times a Kṣatriya or a Vaiçya might become a Brāhmaṇ or *vice versé*. The seven eminent Ṛṣis above referred to are —

- | | | |
|---------------|--|---------------|
| (1) Bhrigu. | \| | (4) Atri. |
| (2) Aṅgīrasa. | \| | (5) Pulaha. |
| (3) Marici. | \| | (6) Pulastya. |
| (7) Vāṣiṣṭha. | | |

Pulaha gave birth to Rākṣasas, and Pulastya to giants, while Vāṣiṣṭha died and appeared again as a descendant of Marici. Consequently, all existing Brāhmaṇs trace their descent from Bhrigu, Aṅgīrasa, Marici or Atri. In early days there seem to have been no restrictions on marriage, and it was not until the time of the Saptarṣis that the Brāhmaṇs divided themselves into family groups, and men were forbidden to seek their wives within the limits of the group to which they themselves belonged. These groups were named after the seven Ṛṣis and their contemporary Agastya, viz. :—

- | |
|---|
| (1) Jamadagni, a descendant of Bhrigu. |
| (2) Bharadvāja „ „ Aṅgīrasa. |
| (3) Gotama „ „ „ |
| (4) Kaçyapa „ „ Marici. |
| (5) Vāṣiṣṭha „ „ „ |
| (6) Agastya „ „ „ |
| (7) Atri, said to be Atri himself, but probably a descendant. |
| (8) Viçvāmītra, a descendant of Atri. |

These are known as *gotra-kāras* or makers of *gotras*, and their family groups constitute the original exogamous divisions of the Brāhmaṇs. Subsequently ten more groups appeared, consisting of Kṣatriyas who became Brāhmaṇs. They claim descent, some from Marici and some from Atri, but on becoming Brāhmaṇs they entered the family either of Bhrigu or of Aṅgīrasa as noted below :—

- | |
|--|
| (1) Vitāhavya, followers of Bhrigu, descended from Marici. |
| (2) Mitrāya „ „ „ Atri. |
| (3) Çunaka „ „ „ „ |
| (4) Veṇā „ „ „ Svayambhuva Manu. |

- | | | | | |
|-----------------|--------------|----------|----------------|---------|
| (5) Rathitara | following of | Angirasa | descended from | Marici. |
| (6) Mudgala | " | " | " | Atri. |
| (7) Viṣṇusiddha | " | " | " | Marici. |
| (8) Hārīta | " | " | " | " |
| (9) Kaṇva | " | " | " | Atri. |
| (10) Sankriti | " | " | " | " |

The manner in which Vitāhavya became a Brāhmaṇ is described as follows in the *Mahābhārata* (Anuśāsanika Parva, 30th Adhyāya) :—

"King Divodāsa was attacked by the sons of Vitāhavya, a King, and all his family was slain by them in battle. The afflicted monarch, Divodāsa, thereupon resorted to the sage Bharadvāja, who performed for him a sacrifice, in consequence of which, a son named Pratardana was born to him. Pratardana, becoming an accomplished warrior, was sent by his father to take vengeance on the Vitāhavyas. Vitāhavya was defeated in the battle and had to fly to another sage, Bhrigu, who promised him protection. The avenger, Pratardana, followed him, and demanded that the refugee should be delivered up. Bhrigu answered : "There is no Kṣatriya here: all these are Brāhmaṇs." Hearing this assertion of Bhrigu, Pratardana departed, while Vitāhavya, by the mere word of Bhrigu, became a Brāhmaṇ Ṛṣi and an utterer of the Veda."

Similar legends are told regarding the other accretions from the ranks of the Kṣatriyas.

These Kṣatriya groups, although they have entered the family of Bhrigu or of Angirasa, are not prohibited from intermarrying with the other descendants of these Ṛṣis, as they are not their real offspring, nor is there any restriction on their intermarrying with the descendants of their reputed ancestors Atri and Marici. On their admission to Brāhmaṇical rank they were regarded as new centres.

The ancient writers regard all Brāhmaṇs as descended from the eight *gotra-kāra*, Ṛṣis, and are thus obliged to allow exceptions to the general rule prohibiting intermarriage between the descendants of the eight Ṛṣis in favour of the ten groups named above. It is simpler, as Mr. Chentsal Rāo points out, to treat these as separate exogamous groups and so raise the total number to 18.

The number of *gotras* in existence at the present day is far greater and amounts to several thousand. They are named in each case after the latest important Ṛṣi who founded the *gotra* and is known as the *gotra ṛṣi*. It does not follow that because the *gotra Ṛṣis* of two Brāhmaṇs had the same name, they necessarily belong to the same *gotra*. There are often different *gotra ṛṣis* of the same name. Nor does the fact that their *gotra* is different prove that a couple may lawfully marry; this depends on whether they are descended from the same *gotra-kāra* Ṛṣi or not.

To ascertain this it is necessary to know what is a man's *pravara*. Whenever a Brāhmaṇ performs any sacred act, such as praying to the

gods, he is required to pronounce the names of certain important ancestors of his *gotra ṛṣi*, in order, it is said, to vindicate his fitness for the task.* The names of these ancestors constitute his *pravara*, and the ancestors themselves are known as the *pravara ṛṣis*. Some Brāhmaṇs name in their *pravara* three ancestors, and others either 4, 5 or (very rarely) 7, but whatever the number it is an almost invariable rule that one of them must be the *gotra-kāra Ṛṣi*. The *pravara* therefore shows from which of these *Ṛṣis* a man is descended, and it is this, and not his *gotra*, which determines whether marriage into a particular family is lawful or not.

The above represents the restrictions on marriage only in so far as they are based on traditional descent. There are at the present day numerous other restrictions based on locality, language and the like, but these not at present under consideration. [MR. E. A. GALT, C.S.]

Lohathamiā Rājputs.—This sub-division is not mentioned by Crooke (Tribes and Castes of the N.-W.P. and Oudh), and no details are given in Risley's Tribes and Castes of Bengal, except the statement that it is found in Bihar. The two following notes were prepared by Major Vost from enquiries in the Ballia district.

[R. BURN, I.C.S., *Supdt. of Ethnography, United Provinces*.]

Ordinarily the tribe is spoken of as Lotamiā, but correctly written the name is Lohathamiā. The word *lohā*, the strong form of *loh*, refers to any warlike weapon made of iron, and *thamiā* to the holding of the weapon.

The tribe is descended from an ancestor whose name is forgotten, but who is traditionally believed to have come from Lohāgaḍh, somewhere in the 'West.' The original settler had four sons, whose descendants gave rise to the four divisions of the Lohathamiās. Those sons were :—

- (1) Dat, the ancestor of the Suhīā Lohathamiās at Suhīā, 1½ miles to the S.-W. of the town of Ārā.
- (2) Kabirāj, the ancestor of the Kabirāj Lohathamiās at Bai-riyā in the Baliyā district.
- (3) Kaidahiā, the ancestor of the Kaidahiā Lohathamiās at Jamirā, 2 miles to the E. of the town of Ārā.
- (4) Kuardar, the ancestor of the Kudariā Lohathamiās at Kudariā,† 2 miles to the S. of the town of Ārā.

[MAJOR W. VOST, I.M.S.]

* Possibly the idea was originally to invoke their aid. The word *pravara* means a "call" or "summons."

† Kudariā, in the map of the Shāhābād district is written with G instead of K.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR MAY, 1903.

The Monthly General Meeting of the Society was held on Wednesday, the 6th May, 1903, at 9-15 P.M.

THE HON'BLE MR. JUSTICE F. E. PARGITER, B.A., I.C.S., Vice-President, in the chair.

The following members were present :—

Mr. S. A. Alim, Mr. J. Bathgate, Mr. I. H. Burkill, Mr. D. Hooper, Mr. C. Little, Mr. H. H. Mann, Major F. P. Maynard, I.M.S., Dr. E. D. Ross, Rai Bahadur Ram Brahma Sanyal, Pandit Yogesha Chandra Sastree, Dr. C. Schulten, Mr. E. P. Stebbing, Pandit Satis Chandra Vidyabhusana, Mr. E. Vredenburg.

Visitors :—Dr. M. M. Masoom, Mr. H. Maxwell-Lefroy, and Mr. D. H. W. Ritchie.

The Minutes of the last meeting were read and confirmed.

Fourteen presentations were announced.

Mr. W. N. Edwards was ballotted for and elected an Ordinary Member.

It was announced that the Revd. H. O. Moore, Lt.-Col. G. F. A. Harris, I.M.S., and Mr. L. W. King had expressed a wish to withdraw from the Society.

The Chairman announced :—

1. That Dr. T. Bloch having returned from tour, had taken charge of the duties of the Philological Secretary from Dr. E. D. Ross.

2. That the Hon'ble Dr. Asutosh Mukhopadhyaya had been appointed to officiate as the Treasurer of the Society during the absence of Mr. C. R. Wilson.

The General Secretary reported the presentation of the following coins :—

From Babu Rampada Chatterjee, Sub-Deputy Collector, Kishenganj, Purnea—1 gold and 7 silver coins.

From the Government of United Provinces of Agra and Oudh—15 silver coins.

From the Bombay Branch, Royal Asiatic Society—2 gold coins.

The following papers were read :—

1. *The origin of the kap section of the Bārendra Class of Brahmans of Bengal.*—By PANDIT YOGEŚA CHANDRA SASTREE.

(Abstract)

In the 12th century A.D. during the reign of Ballala Sena the number of the Brahmans brought to Bengal by Adisura became immensely increased. There were 350 Brahmans in Bārendrabhūmi and 750 in Rārabhūmi. He sent 250 Brahmans from among 350 Bārendra Brahmans to the south-eastern provinces of India and divided the remaining 100 into three sections, namely : (1) Kulins, (2) Çuddhaçrotriyas, and (3) Kastaçrotriyas. Maitra, Bhīma, Rudra, Sanyaminco, Lahiree, Bhaduree, Sadhu, and Bhadara, these 8 houses were the Kulins and Karanja, Nandanabasi, Bhattasali, Lauree, Champati, Jhampati, Atirtha and Kamadeva, these 8 houses were the Çuddha Çrotriyas. Udayanacharya, the author of Kusumanjali, was born in the house of Bhaduree and Kulluka Bhaṭṭa, the author of Manvartha Muktavali, was born in the house of Nandanabasi. Besides the above 16 houses of Kulins and Suddha Srotiyyas, there were 84 houses of Kasta Çrotiyyas.

The *kap* section was originated from the Kulin under the following circumstances : one Nrisinha Laurial of Santipore, having been insulted in a dinner given by Sukadevacharya, of the village Brahmanbala, determined to raise his social position. In order to fulfil his object Nrisinha persuaded Madhu Maitra of Majgram, the most respectable Kulin among the Kulins of the then existing society, to marry his daughter. On account of this marriage Madhu was excommunicated from the society by the sons of his former wife.

On the annual Çraddha day of Madhu's father he invited Dhain (देह) Bagchi, his brother-in-law, to dine at his house, as he did not expect to get any Brahman of his own village or its vicinity. On that day Dhain Bagchi having been obstructed by a fencing made by Madhu

while entering into his house, exclaimed—"Well Sir,—what a *kap* have you created here?" In reply, Madhu said: "Yes Sir, I have created a *kap* there." Afterwards he heard everything from Madhu and convened a meeting of Kulins and Srotriyas of Majgram and its vicinity to judge the conduct of Madhu's sons. In that meeting Madhu's sons were found guilty of disregarding and illtreating their father.

Thereupon Dhain Bagchi declared that the sons of Madhu Maitra, by his first wife, should not be henceforth classed among the Kulins. They should be called *kāp*. Their position in the society would be an intermediate one. He also declared that henceforth, should any Kulin touch their water or come in contact whatsoever with them, he also would be a *kap*. The latter declaration was afterwards modified by Raja Kamsa Na ayana Ray, of Tahirpore, who ruled that a Kulin should not lose his Kulinship, unless he married the daughter of a *kap* or allowed his daughter to marry a *kap*. This rule is still in existence.

2. *Note on the information supplied by meteorological observations at Hill stations.*—By C. LITTLE, M.A.

In a paper read by me at the last monthly meeting of this Society I advocated the extension of meteorological observation to heights above the ground level, to which it has hitherto been confined in India. In the subsequent discussion the President asked whether the information recorded at Hill stations could not be used in discussing atmospheric conditions at the same level, but at a distance from the Hills. The answer to such a question could be on general lines only in the absence of direct observation, and so far as I remember the opinion I expressed was, that information collected on the summits of isolated peaks may in some respects be useful, but that in the Himalayas the influence of the ridges and valleys must deprive meteorological observations of much of their value except for discussions of local interest.

Since the meeting I have met with an instance in which the information collected at Hill stations not only does not appear to represent atmospheric conditions, but may even be misleading to those who may rely upon Hill stations in general discussions. As it appears to me to be important that there should be no misunderstanding in this matter, I have thought it advisable to offer this note to the Society with reference to the President's question, although it contains no information new to meteorologists.

In a paper in the December number of the *U.S. Monthly Weather Review*, on the semi-diurnal periods in the earth's atmosphere, Professor Frank H. Bigelow points out that the semi-diurnal period extends to a short distance only from the earth's surface as shown by the various

direct observations recorded from time to time in Europe and America. He says: "In past years, before it was recognised that the single period prevails throughout the atmosphere, except in its lowest layers, efforts were made to account for the surface double period in two ways (1) by referring it to a dynamic forced wave involving the entire atmosphere as was done by Lord Kelvin, and (2) by seeking to explore the possible connections between the observed waves and the manometric waves due to temperature effects in the lower strata." He goes on to point out how neither of these theories is satisfactory, and states "Like so many other scientific problems which are difficult of solution the trouble apparently lies in the fact that the necessary observations have not been made in the right place. It was supposed that the variations noted at the ground were common to the adjacent strata up to considerable heights, but since meteorologists have succeeded in getting some upper air observations this supposition turns out to be contrary to the fact."

I give herewith tracings showing the diurnal variation of pressure at Calcutta, Lahore, Simla, Trivandrum, and Angustia, also the variation of pressure between Lahore and Simla, from which it will be seen that the diurnal variation is much the same at Hill stations as in the plains, whereas observations in Europe and America would lead one to expect that at 7,000 feet above the plains the variation would be of quite a different form as given by Professor Bigelow. A copy of the curve given in the *Monthly Weather Review* is attached for comparison.

3. *Insecta Indica, I. Coleoptera, 1. Notes on the Bostrichidæ of the Indian Region, Part I.*—By E. P. STEBBING, I.F.S.

(Abstract.)

With the exception of the *Lepidoptera* and *Rhynchota*, a portion of the *Hymenoptera*, a family (the *Mantodea*) of the *Orthoptera*, and another (*Cerembycildæ*) of the *Coleoptera*, but little work has up to the present been undertaken in the direction of cataloguing or monographing the rest of the known *Insecta* of the Indian Region. It is, therefore, extremely difficult for workers in the country to find out what is known about a family they may be interested in, and equally so to discover (without going to the collections themselves which is generally impossible) to what extent that family is represented by specimens in the Indian Museum at Calcutta.

The work already accomplished on these lines is easily summarised. It consists of:—

(1) A series of papers on the *Rhynchota* of the Indian Region by the late Mr. E. T. Atkinson, I.C.S. Read before the Asiatic Society and

afterwards published in Vols. LIII to LVII (1884 to 1888) of Part II of the Journal. Species represented in the Indian Museum collections are noted.

(2) A Catalogue of the Moths of India by E. C. Cotes and Colonel Swinhoe. Commenced in 1887, completed in 1889.

Species represented in the Indian Museum collections are noted.

(3) Catalogue of the Mantodea by Mr. J. Wood-Mason, Superintendent, Indian Museum. Two parts 1889 and 1891.

(4) Butterflies of India by L. de Nicéville, 3 Vols., 1883 to 1890. A fourth Volume is complete in manuscript. No notes have been made as to whether the species enumerated are represented in the Indian Museum collections: but as the Trustees of the Museum purchased the whole of Mr. de Nicéville's valuable collection, it is probable that most of the species referred to are in the Museum collections.

(5) The Moths of British India in the Fauna Series by Sir G. Hampson, Bart., Vols. I-IV, 1892-1896.

(6) The Hymenoptera of British India in the Fauna Series by Colonel C. Bingham, Vol. I, Bees, Wasps (1897). Vol. II, Ants and Cuckoo-Wasps (1903).

(7) The Rhynchota (Heteroptera) of British India in the Fauna Series by Mr. W. L. Distant, 1 Vol. only published as yet (1902).

The second volume of Distant's *Rhynchota* and Gahan's volume on the Longicorn *Coleoptera* will be issued shortly.

No mention is made in the volumes of the Fauna Series as to whether the species described are present in the Indian Museum collections or not.

In addition to the above papers, new species are of almost monthly appearance in one or other of the numerous scientific serials and magazines which record such. These will not be listed here, as few will be obtainable by the ordinary student in the country. I may mention, however, the constant appearance of important papers in Indian Museum Notes which may be said to hold the position of being the central and chief entomological publishing centre for the Indian Region; the continuation of the Moths of the Fauna Series in the Journal of the Bombay Natural History Society, which has also had some papers on Indian Hymenoptera and Butterflies, and the excellent papers on the Coccidæ of the Indian Region by Mr. Ernest Green in Indian Museum Notes.

It will, however, be evident that a vast amount of work still remains to be undertaken. In these papers an attempt will be made to add something to what has already been so successfully commenced. It is not proposed to limit their scope to any one Order, although the *Coleoptera* will receive considerable attention. In the case of every species

mentioned, a reference will be made as to the whether it is represented or otherwise in the Indian Museum Collections. If it is not, every effort will be made to procure specimens of it for these collections. New species in the Author's possession will, when possible, be described; and short references will be given as to distribution, habits, etc., of the insects noticed.

Coleoptera 1.

Notes on *Bostrichidae* of the Indian Region. Part I.

Until comparatively recently little was known about the *Bostrichidæ*, which had been little studied. Mr. P. Lesne, of the Paris Museum, has remedied this state of affairs, and in a classical Monograph (still unfinished) has revised the whole of the group. In these papers, which are confined to the mention of species inhabiting the Indian Region, I have made use of this revision, adding where possible any fresh information upon the life-histories, distribution, etc., that research and my own personal observations, have brought to light.

The family may be considered of some economic importance, since the well-known bamboo borers which are widely distributed throughout the Indian Region belong to it.

Of the four tribes into which Mr. Lesne divides the family, but two, the *Dinoderinæ* and *Bostrichinæ*, have representatives in India.

The *Dinoderinæ* are considered in this paper.

It includes four genera, of which two *Dinoderus* and *Rhizopertha* have representatives in the Indian Region.

Dinoderus is represented by five Indian species: *D. distinctus*, *D. pilifrons*, *D. punctatissimus*, *D. minutus* and *D. brevis*.

Rhizopertha is represented by one species, *Rhizopertha dominica*.

These six species are shortly treated of in the present paper.

[Note.—On reconsidering the question the Author has determined to publish the series of papers entitled *Insecta Indica* in Indian Museum Notes. This paper will therefore appear *in extenso* in that publication.]

4. *Silajatu: an ancient Eastern Medicine*.—By DAVID HOOPER, F.C.S.

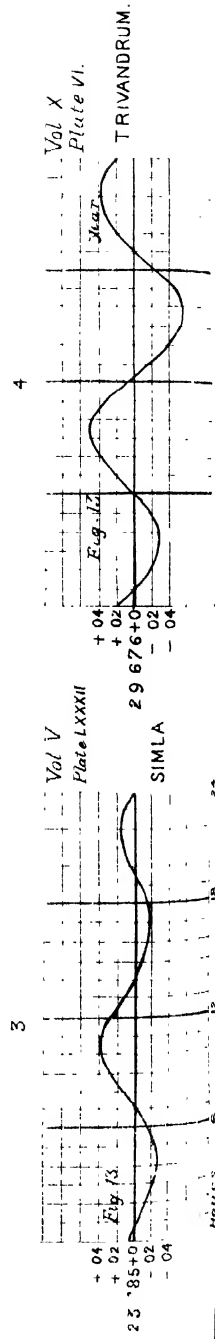
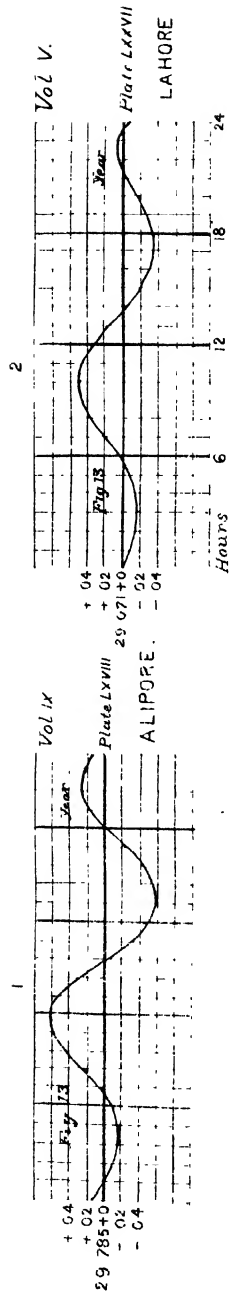
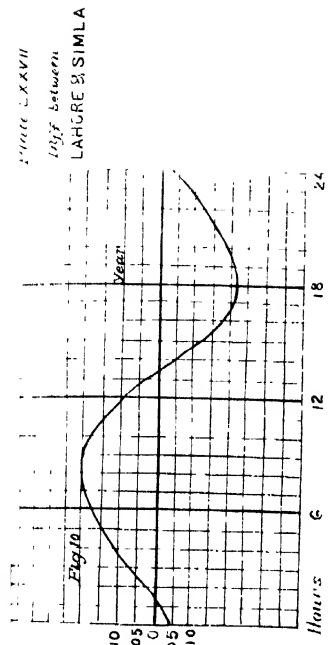
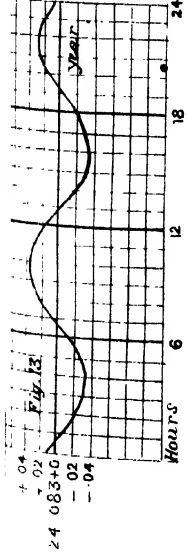
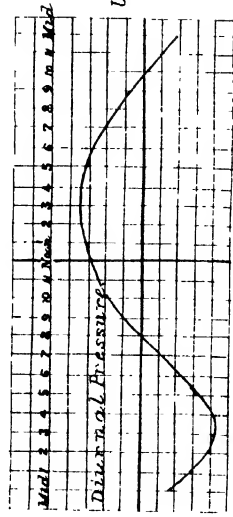


Plate XXVII.



7



U.S. Weather Bureau.

The numbers to the right of the diagrams refer to the "Indian Meteorological Memoirs."

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR JULY, 1903.

The Monthly General Meeting of the Society was held on Wednesday, the 1st July, 1903, at 9-15 P. M.

The Hon. Mr. Justice F. E. Pargiter, B.A., I.C.S., Vice-President, in the chair.

The following members were present :—

Mr. J. Bathgate, Dr. T. Bloch, Mr. I. H. Burkill, The Rev. E. Francotte, S.J., Mr. T. H. Holland, Mr. H. E. Kempthorne, Mr. W. A. Lee, Mr. C. Little, Major F. P. Maynard, I.M.S., Mr. J. Nicoll, Mahamahapadhyaya Haraprasad Shastri, Mr. E. P. Stebbing, Pandit Satis Chandra Vidyabhusan, Mr. E. Vredenburg, and Mr. D. R. Wallace.

Visitors :—The Hon. Mr. Justice Rampini, Mr. R. R. Simpson, and Mr. G. Wallace.

The minutes of the last meeting were read and confirmed.

Twenty-nine presentations were announced.

Maharaja Jagadindra Nath Roy Bahadur and Mr. H. Maxwell Lefroy were ballotted for and elected Ordinary Members.

The Chairman announced that the Elliott Prize for Scientific Research for the year 1902 had not been awarded, as the essay received in competition was not of sufficient merit to justify the award of the Prize.

The Chairman also announced that Mr. T. H. Holland had been elected a member of the Council of the Society.

The General Secretary reported that the Hon. Mr. Justice F. E. Pargiter had been appointed to serve on the Finance and Philological Committees, and Dr. E. D. Ross on the Library Committee of the Society during the present year.

The Natural History Secretary exhibited pupæ and moths, together with drawings of all the stages in the life-history of the Tineid larvæ shown at the last meeting feeding upon hair taken from a badly attacked mounted head of an *Oris hodysoni*. The first of these larvæ changed to pupæ on the 6th June, and others followed suit on the following days, until by the 25th all had pupated. In doing this, they attach themselves either amongst the hairs by means of thin silken strands, or more often collect gregariously together in bunches. The covers of the box in which they were kept were all made in this way, the larvæ congregating together and spinning their cases together. They pupate within the case. Pupation lasts but a few days only, the first moths issuing on 11th June, whilst others followed on 14th and subsequent days, and are still emerging. The pupæ moves itself to the mouth of the case, when the moth is ready to emerge, and protrudes beyond it to facilitate the exit of the moth. Thus, when the latter has escaped, the empty pupal case remains projecting from the mouth. The pupa is brown in colour and very small. Length 6 millim. The figure shows the larval cases collected gregariously together, and an empty pupal case projecting from the mouth of the larval case.

The moth is a tiny grey insect with very long fringes to its wings, which are longish and narrow and covered with long scales especially near the inner angles of the lower wings. Wing Exp.—13·2 millim.

Mr. Stebbing also exhibited a small species of *Thanasimus* prox. *formicarius*, which is predaceous upon the larvæ of the Bamboo shot-borer *Bostrichus pilifrons*, an insect known as 'gloong' in many parts of India. The larvæ are long and white in colour, and also feed upon the Bostrichid larvæ in their galleries in the bamboos. When full-fed they pupate in the bamboo, and the beetles live inside it and feed upon the shot-borer's larvæ. They probably only leave the galleries to pair. They are very active and excessively voracious.

This beetle will be described in a subsequent paper.

The exhibit shows the larvæ, pupæ and adults of the *Thanasimus*, as also the larvæ, pupæ and adults of the *Bostrichus pilifrons*.

The following papers were read :—

1. *Notes on Sundribun Plants.*—By D. PRAIN.

The writer has recently published a paper (*Records, Bot. Survey of India*, vol. ii. n. 4) dealing with the *Flora of the Sundribuns*. He had occasion there to call attention to the fact that a number of species have been recorded from this region in Roxburgh's *Hortus Bengalensis*, published in 1814, and that a few of the species there mentioned have not been collected in the area since Roxburgh's time. The specimens themselves that would have verified Roxburgh's statements were removed from Calcutta in 1828 and are now entirely lost to India. Those, however, who have to follow Roxburgh's published work are so struck by the closeness and accuracy of his observations that, when he makes a definite statement, they accept its correctness in the face of any amount of *negative* evidence.

The species that are recorded from the Sundribuns by Roxburgh, for which the record had been unverified by subsequently collected specimens when the writer's paper went to press hardly a year ago, were *Flemingia congesta*, *Mezoneuron cucullatum*, *Bruguiera parviflora*, *Arthrocnemum indicum*, *Salicornia brachiata*, *Dendrobium Pierardi* and *Pteris vittata*. Since the paper was sent to the printer, a native collector, who had been sent to obtain seeds of various Sundribun species, has brought in specimens of *Salicornia brachiata*, which he found in abundance not far from Matla (Canning Town). And immediately after the publication of the paper the writer received from a careful observer, Mr. J. Lancaster, Secretary to the Agricultural and Horticultural Society of India, an interesting note regarding *Dendrobium Pierardi*, which is worthy of being recorded.

'In June 1896, Mr. Lancaster, being unwell, was sent for a fortnight's change of air by Sir C. C. Stevens, then President of the Society, and through the kindness of Capt. Petley was enabled to join the "Tigris" which was proceeding to stock the Refuge-Houses along the seaface of the Sundribuns.

The steamer went direct to the most distant Refuge-House, two days' journey east of the Matla. While running down the lane of water leading to the house the boat took the ground, a not unusual accident at the sharp turn known as the Devil's Elbow.

The delay consequent on this was taken advantage of by Mr. Lancaster to examine through a glass the islands east and west of the position. Detecting to the east, on Bangadhony Island, a tree rather taller than usual with a forked stem and apparently a clump of orchids in the fork, Mr. Lancaster accompanied by Mr. Hogg, late of the Calcutta Police, proceeded to this tree, and climbing its gnarled and twisted trunk,

obtained a clump of a *Dendrobium*. This he mounted on his return to Calcutta, and obtained flowers later on which proved it to be *Dendrobium Pierardi*. The plant is still alive in the Society's garden at Alipur, and though the block on which it was originally placed has decayed, its roots have laid hold of some wire netting and *Vanda teres* stems, and it thrives in quite as exposed a position as that in which it was found.'

Thus, though the writer was unaware of the fact, Roxburgh's record of *Dendrobium Pierardi* from the Sundribuns area, which by the way is the *locus classicus* for the species, had already been amply confirmed, and there is little doubt that similar happy accidents will in time lead to a confirmation of Roxburgh's other and as yet unverified records. The writer would esteem it a favour if members of the Asiatic Society interested in the Sundribuns would communicate with him should they contemplate visiting on official duty, or for purposes of sport, this very enticing region, when he would be glad to indicate to them what, from the botanical standpoint, still calls for observation and investigation.*

2. *Notes on the Grām Devatā or tutelary village deity of Orissa*.—By JAMINI MOHAN DAS, Deputy Magistrate, Cuttack. (Communicated by the Anthropological Secretary.)

(ABSTRACT.)

Throughout the plains of Orissa, every village has a tutelary goddess, called Grām Devatā or Ṭhākūrāṇī. She is generally established under the shade of a tree, and commonly represented by a piece of shapeless stone, surrounded by several smaller pieces representing her children. Carved images are also met with, though very rarely, and sometimes the trunk of a tree, supposed to possess supernatural properties, is worshipped as the village Goddess. The Kandhs of Nāyagarh, however, believe their village deity to be of the male sex, and use a wooden post, 2½ feet high, to represent it. Besides the generic name, Grām Devatā, each Goddess has a specific name, which is generally one of the thousand names of Kālī. The most noticeable feature of the Grām Devatā worship is the non-priestly caste of the men who conduct it. In the plains, the Nāpit, Māli, Rāul, or Bhopā is usually the priest,

* Since this paper was read, the Rev. Mr. Le Quesne, of Bhowanipur, has kindly communicated plants of *Randia dumetorum*, raised from seeds collected in an abandoned Sundribun settlement at Gaoroba. The writer has also just learned that in other places which mark the sites of habitations of the old dacoits and salt-smugglers who infested the Sundribuns, are to be found growing examples of *Mimusops Elengi*—the Bakúl tree.

while the aborigines select men from their own tribes. The worship of the village Goddess is largely supported by small rent-free grants of land, which is held by the priest, who gets in addition daily doles from the rich men of the village, and weekly doles from the poorer people. Thursday is considered specially auspicious for the regular *pūjā* of the Goddess. Special offerings are made at all festive occasions, and the *Ṭhākuraṇī* receives particular attention on the out-break of epidemic diseases. The ceremonies performed on these occasions are the same as elsewhere in India. The people have a peculiar means of knowing the wishes and decrees of the Goddess. In almost every village is a male or female medium, called *Kālaṣi*, through whom the Goddess communicates with the people. He appears before the Goddess holding two sticks in his hands, and swings his body to and fro. After a time he begins to tremble, and in the course of his confused mutterings gives out some secrets of the village, to win the confidence of the people. He then predicts evil to some and good to others, prescribing at the same time the remedies required in the shape of special offerings to the Goddess and special favours to himself. Certain village Goddesses in the plains are regarded as "Parama-Vaiṣṇavis," and animal sacrifices are not allowed before them. Such sacrifices are also sparingly made before the other Goddesses, probably owing to the spread of Vaishnavism. Fowls are also let loose before some of the Goddesses by the upper classes of Hindus, who do not eat them, and they are killed by the lower classes who eat them.

Finally, the author points to the practice of animal sacrifices, the offerings of fowls, the relegation of the priestly function to the Sudra castes, and the shapeless form of the images as indicating the aboriginal origin of this form of worship.

3.* *A note on the life-history of Chermes abietis-piceæ, Steb. Ms.—By E. P. STEBBING.*

(ABSTRACT.)

In a previous paper read before this Society at the Meeting held on April 1st last, I gave an account of the mode of development of the alar appendages of the Spruce form of *Chermes abietis-piceæ*. It is my intention here to describe in detail the observations I have up to the present been able to make on the life-history of this exceedingly remarkable and interesting insect, which lives at elevations of between 7000 to 9500 feet upon Spruce and silver fir trees in the N.-W. Himalayas.

The genus *Chermes* belongs to the great family *Aphidæ* or Plant Blights, one of the families of the *Rhynchota* or bugs, insects provided with a proboscis or beak by means of which they suck out the juices of plants.

It is not too much to say that man himself would be exterminated off the face of the earth if this particular order of insects were not kept in check by their numerous predaceous and parasitic foes. But the genus is especially remarkable, in common with the well-known *Phylloxera* which commits such serious depredations in European vineyards, owing to the fact that one generation of individuals assume different habits to the one that has preceded them, and so set up the phenomenon known as 'parallel series.' It is well-known that in the case of the *Phylloxera*, one generation lives in galls upon the leaves, whilst a succeeding one lives underground upon the roots of the vine. There is a European form of the *Chermes* here described, and its life-history has been the subject of the most lively discussion amongst European scientists, the investigations of such renowned observers as Blochmann, Dreyfus and Cholodkovsky standing out the most prominently. Perhaps the latter may be said to have given us the most lucid explanation in his paper published as recently as 1890. This European form, which is named *Chermes abietis-laricis*, lives upon the Spruce and larch. The writer discovered the *Chermes* here dealt with in the N.-W. Himalayas. In this region the larch does not exist, and its place is taken by the Silver fir which is generally to be found associated with the Spruce. The life-history of the insect upon these trees, which appears to differ in a few points from that of its European confrere, may be briefly summarised as follows:—A wingless parthenogenetic female of the *Chermes* either deposits her eggs upon Spruce twigs and branches in the autumn, or hibernates through the winter upon the tree and lays her eggs in the April of the following year. These eggs, which are numerous, hatch out at the beginning of May, and the young larvæ collect round the base of the young developing needles on the branches and by suction cause them to swell up at their bases. The needles thus coalesce, enclosing the young larvæ, into a gall or pseudo-cone. This grows on until it has the appearance of a young, green fir-cone. Inside it becomes partitioned off into a number of cells, in each of which a number of young larvæ live and grow to maturity. In the middle of July they are ready to undergo their last moult. The cone then opens by shrinkage at the edges of the little doors, with one of which each compartment is furnished, and the little fat purple larvæ crawl out on to the outside of the false cone. They at once shed their last skin and become perfect winged insects, most gorgeously coloured, though these colours fade within a few hours. These insects now take on different habits; some of them remain on the Spruce and lay eggs thereon out of which young are hatched, which probably grow into the hibernating females, whose offspring next year produce the galls upon the tree. But another portion migrate to the Silver fir (in

Europe it would be the larch); here they lay eggs from which arise the wingless parthenogenetic females which either lay eggs upon the stems and branches of the new or secondary plant in the autumn or hibernate on it through the winter and lay eggs in April. These eggs are invariably laid within white cottony masses which render their presence upon the trees easily perceivable. These eggs hatch out in the beginning of May, and the young, crimson-coloured larvæ crawl up on to the newly-developed spring needles of the tree and suck out their juices. Part of these become nymphs and go on to the winged condition, and then about the middle of July fly back to the Spruce, whilst the rest remain wingless and lay eggs that give rise to yet another wingless generation; in fact, it may be said that a second pair of parallel series is formed upon the Silver fir, of which one is wingless and exclusively parthenogenetic and continues to live for an indefinite period upon the tree, whilst the other becomes winged and returns to the Spruce. I have not as yet traced the further life-history of these winged individuals beyond ascertaining the fact that they really do return to that tree. It is probable, however, that they at once lay eggs, which give rise to a sexual generation. These latter lay upon the Spruce the egg which gives rise to the wingless parthenogenetic ♀ which starts the life-cycle by laying the eggs from which hatch out the young larvæ whose action produces the galls or pseudo-cones.

It is considered probable that it will be held that the discovery and working out of the life-histories of this insect and that of the *Thanasimus* sp. (the Clerid predaceous upon bark-beetles) whose habits were discussed in a paper read at the last Meeting, are amongst the most important, as they are scientifically as well as economically amongst the most interesting of the entomological investigations made in this country.

4. *Notes on the Hindus in the Nuskhi Tahsil of the Chagai Agency in Baluchistan.*—By H. RAI SAHIB DIWAN JAMIAT RAI, *Special Assistant to the Superintendent, Imperial Gazetteer, Baluchistan.* Communicated by the Anthropological Secretary.

(ABSTRACT.)

These notes are the outcome of enquiries made from some of the principal Hindu shop-keepers of Nuskhi. There are in all about thirty families, old inhabitants, some of whom have been in the Tahsil for five generations. They are all Arora Hindus, and the majority of them came from Kachi and Shikarpur. They all know Brahui, and most of the men speak Baluchi also, but in their homes they speak the Jatki dialect. There are also about twenty families in Shorawak, in Afghan territory. They have not very clear ideas about their religion. The

majority profess Sikhism, but the Shikarpuris worship Darya Bakhsh, the River Pir of Sind. So far as is known, none of the Hindus have been converted to Muhammedanism. There is, however, an instance of a Hindu taking a Muhammedan girl as wife. Hindus have been in the habit of buying and keeping Muhammedan slaves. These Hindus have some peculiar usages of their own. Thus a Muhammedan can clean his pots with ashes, sand, or dust, but he must not wash them with water. A Muhammedan may bring them water in a skin, a brass pot, or an earthen pitcher. A Hindu may wash with water the baking-stove belonging to a Muhammedan, sprinkle salt on it, and then bake his bread on it. A Muhammedan must not touch food belonging to a Hindu, but he may carry it in a pot or a piece of cloth. The author then goes into details with regard to the ceremonies at betrothal, marriage, childbirth and death; but these do not appear to differ essentially from the customs prevailing amongst the Hindus in the Panjab.

5. *The exceptional heat in Bengal, and its probable cause.*—By C. LITTLE, M.A.

(ABSTRACT.)

The temperature tables given for Calcutta and other parts of India show that between the middle of April and the 25th of May excessive heat continued without interruption, though not without fluctuation in Bengal; while beyond the western frontier of Bengal there was either normal, or, as in the north-west, exceptionally low temperature. The progressive character of the temperature recorded at Alipore, since the establishment of the observatory there, is referred to; and it is pointed out that 107°.4 registered during the past season is the highest recorded with one exception, *viz.*, 108°.2 on the 12th of June, 1901. This latter value is to some extent of doubtful accuracy. It is also shown that the temperature at Calcutta exceeded 103° eleven times during April and May 1903, whereas during the previous ten years the average number of days on which that figure was exceeded was less than three. It is claimed that excessive temperature of that nature as regards intensity and duration in Bengal, must, in the absence of relatively high temperatures in the west, be due to well defined causes not indicated by the ground-level observations. Reference is made to the direction of the upper current, and the writer states that his own observations of the course followed by thunderstorms during the past season as well as the cloud movement, whenever cloud was visible, indicate that the air-current overhead was, during the period of heat, from the west instead of from the more usual north-westerly direction. Assuming that a westerly current from Central India is warmer than a north-westerly current

from the directions of the Himalayas and Central Asia, it is shown that the more abnormal features of the weather in Bengal may be explained, the excessive heat by impaired convection, and the failure of thunderstorms by the diminished vertical temperature gradient.

6. *Notes about the Wanechis (Spin Tarin Afghans) of the Shahrig Tahsil, Thal Chotiali, Baluchistan.*—By RAI SAHIB JAMIAT RAI, *Special Assistant to the Superintendent, Imperial Gazetteer, Baluchistan.* Communicated by the Anthropological Secretary.

(ABSTRACT.)

The Wanechis are a section of the Spin Tarin Afghans. These, with a few exceptions, have left their original home in Pishin, and migrated southwards to Shahrig and Duki Tahsils of Thal Chotiali. Numerically their strongest group is the Wanechi, which is said to come of an alien stock. Theoretically an Afghan tribe, as we find it in Baluchistan, is constituted from a number of kindred groups of agnates. That is to say, descent is through the father, and the son inherits the blood of the father. Affiliated with a good many tribes, however, are to be found a certain number of alien groups known as *Mindūn* or *Hamsāyah*. The latter term means: "living in the same shade." These groups are admittedly not united to the tribe by kinship. The number of Wanechis according to the last census is 2,802, and the sections specified are twenty. The paper then goes into further details with regard to the sub-divisions or clans making up the various sections, their origin, their grouping in time of tribal warfare, the division of looted property, transit-dues levied by some tribes, their marriage customs, and compensations paid for various offences, such as murder, injury, theft and adultery.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR AUGUST, 1903.

The Monthly General Meeting of the Society was held on Wednesday, the 5th August, 1903, at 9-15 P.M.

THE HON'BLE MR. C. W. BOLTON, C.S.I., I.C.S., President, in the chair.

The following members were present:—

Mr. J. Bathgate, Mr. I. H. Burkill, Dr. A. Caddy, Mr. J. N. Das-Gupta, Dr. W. C. Hossack, Mr. C. Little, Mr. J. Macfarlane, Kumar Ramessur Maliah, The Hon'ble Mr. Justice F. E. Pargiter, Mr. C. G. Rogers, Pandit Yogeśa Chandra Sastree, Mahamahopadhyaya Haraprasad Shastri, Mr. E. P. Stebbing, Pandit Satis Chandra Vidyabhusana, Mr. E. Vredenburg, and Mr. E. H. Walsh.

Visitors:—Mr. I. A. Black, Mr. R. Enthoven, Mr. L. L. Fermor and Mr. H. G. Pearson.

The minutes of the last meeting were read and confirmed.

Thirty-three presentations were announced.

Mr. Abdur Rahim and Dr. Mirza Muhammad Masoom were ballotted for and elected Ordinary Members.

It was announced that Lt.-Col. C. H. E. Adamson had expressed a wish to withdraw from the Society.

The General Secretary reported the death of Babu Ram Din Singh, an Ordinary Member of the Society.

With reference to a Circular issued by a Committee of the British Association for the purpose of collecting photographs of Anthropological interest, printed in the Proceedings of the Society for April 1903, the President announced that the Council had agreed to the establishment of a local Indian depôt for the storage of negatives, and the Society had further undertaken to store the negatives.

The President also announced that the Council had approved of the proposal of the Hon'ble Mr. Justice F. E. Pargiter, Vice-President, to use the Society's Meeting Hall for the purpose of arranging a popular lecture on some scientific subject on the 10th August, 1903, at 9-15 P.M. The Council had further undertaken the business of the lecture itself at a charge to cover expenses incurred from the sale proceeds of the tickets, and entrusted the matter to a Sub-Committee consisting of the Vice-President, Mr. E. P. Stebbing, the Hon'ble Dr. Asutosh Mukhopadhyaya, and the General Secretary. Members of the Society will be admitted free and tickets sold to Scientific Institutions at a large reduction.

The General Secretary reported :—

1. That Mr. T. H. Holland had been appointed to serve on the Finance Committee of the Society during the present year.
2. That the order of Council relative to the Library being open to the members of the Society from 10 A.M. to 2 P.M. on Sundays, had been revoked.
3. That the Council had appointed Pandit Mahendra Nath Mukhopadhyaya as the Pandit for the Oriental Library of the Society in the place of Pandit Charu Chandra Bhattacharyya, resigned.

The Natural History Secretary, Mr. Stebbing, exhibited the various stages in the metamorphosis of a species of *Clania prox. crameri* which defoliates Casuarina (*Casuarina equisetifolia*) trees in the Madras Presidency, and made a few remarks upon its life-history. The insect, of which specimens of the various stages and diagrams were shown, belongs to the family *Psychidæ*, commonly called the bag-worms because of the habit the larvæ have of preparing for themselves early in life small cases of bits of stick, leaves, etc., in which they live and pupate. In the present instance the case is made of the small green branches of the tree arranged in a cylindrical manner. The green soon fades, and the case then assumes the dirty grey colour of pieces of stick. The caterpillar feeds upon the needle-like leaves of the tree, and its protective case doubtless helps to protect it against birds which, owing to the very thin foliage of the Casuarina, would quickly see it feeding upon the tree had it not some form

of protection. The grub takes alarm at the slightest motion and immediately withdraws itself into its case. It is a heavy feeder. It pupates within the case, closing down the bag opening at the exterior end after fixing the case to a branch, and then turning round inside the case so as to hang head downwards. The moth escapes at the lower end of the case. Only the male leaves the case; the female is wingless and consists of an elongated yellow sac with no legs or mouth parts. She is fertilised by the ♂ within the case itself, and this is the reason for the great extension of the abdominal tip in the male moth. The female lays her eggs in the case. About 9 days are spent in the pupal stage by the July generation of the insect.

The eggs laid by the July-August moths hatch out within a few days of being laid, the young larvæ at once leaving the case and scattering over the young branches of the tree. These are those of the second generation of the year.

In the discussion that followed Mr. Rogers said that he had noticed some faggot worms on the Casuarinas in Port Blair (the Andamans), and suggested that they might be the larvæ of the same species as Mr. Stebbing had obtained in Waltair and Ganjam (Madras).

Mr. Rogers then drew attention to the occurrence of young Casuarina trees on the North and West Coast of the Little Andaman and also their occurrence in Car Nicobar (West Coast) and Great Nicobar also on the West Coast, and suggested that as the genus was so far as he knew essentially an Australian one, that the seed might have been water-borne and have come across from Madras. The seed of the Casuarina tipens in Madras in May, and the South-West monsoon commences early in June, which would seem to point the possibility of the introduction of the Casuarina into the Nicobars and Andamans in this way. It is true the Casuarinas have been planted at Port Blair (Andamans) and Nancowry (Central Nicobars) on the hills near the harbour, but few young seedlings have resulted naturally from these trees, the young trees referred to above being confined to the sea-shore.

Dr. A. Caddy stated that he knew Australia and that the genus, with the exception of *Casuarina equisetifolia*, was confined to the Australian Continent, but that the species named had been reported from Madagascar.

Mr. Bathgate then asked how the moth could have got to the Andamans from Madras. Mr. Stebbing pointed out that there was no proof of the identity of the species, as no moths had been reared by Mr. Rogers in the Andamans, and it was therefore impossible to say that the larvæ noticed as occurring in that locality were identical with those collected in the Casuarina plantations of Madras.

The following papers were read :—

1. *Chronology of the Eastern Ganga Kings of Orissa.*—By MONMOHAN CHAKRAVARTI, M.A., B.L., M.R.A.S., Deputy Magistrate.

(Abstract.)

The chronology of the Eastern Ganga kings is in a confused state. The object of this article is to clear this confusion as far as possible with the help of inscriptional and other records.

The fourteen Eastern Ganga kings from Cōḍaganga to Nṛsimha Dēva IV have been taken in hand one by one, all the date references noted in a tabular form, the first and last year deduced, the relationship and titles noted, and then all available informations likely to throw light on the chronology have been gathered and discussed. Eighty-one date-extracts of inscriptions have been quoted in the tables, most of them published in full for the first time, besides references to other inscriptions in the accounts given below each table.

The following approximate times of the Orissan Ganga kings have been arrived at :—

Cōḍaganga	...	...	Çaka 998-1069.
Kāmārṇava VII.	...	...	Ç. 1069-1078.
Rāghava	...	...	Ç. 1078-1092.
Rājarāja II.	...	...	Ç. 1092-1112.
Aniyanka alias bhima II.	...	Anaṅga- ...	Ç. 1112-1120.
Rājarāja III.	...	...	Ç. 1120-1133.
Anaṅgabhima III.	...	...	Ç. 1133-1160.
Nṛsimha Dēva I.	...	...	Ç. 1160-1186.
Bhānu Dēva I.	...	...	Ç. 1186-1200/1.
Nṛsimha Dēva II.	...	...	Ç. 1200/1-1227/8.
Bhānu Dēva II.	...	...	Ç. 1227/8-1249/50.
Nṛsimha Dēva III.	...	...	Ç. 1249/50-1274/5.
Bhānu Dēva III.	...	...	Ç. 1274/5-1300/1.
Nṛsimha Dēva IV.	...	...	Ç. 1300/1-reigning in Ç. 1324 and probably in Ç. 1346.
Dark Period	...	...	Ç. 1346(?)—1356/7.

The article ends with a genealogical table of the entire Ganga family from Virasimha, the reputed-founder, to Nṛsimha Dēva IV., with their respective years of reign.

2. *Himalayan Summer Storms and their influence on Monsoon Rain-fall in Northern India.*—By C. LITTLE, M.A.

3. *A List of Tibetan Books brought from Lhasa by the Japanese monk, Mr. Ekai Kawa Gochi.*—By E. H. WALSH, I.C.S.

4. *On the life history of a species of Arbela, new to the Indian Museum Collections, which is proving a destructive pest in Casuarina plantations in Madras.*—By E. P. STEBBING.

(Abstract.)

How little is really known about our insect foes in India is becoming increasingly evident day by day. An insect suddenly swarms over an area in numbers owing to some particularly favourable conditions in its surroundings, it commits serious depredations in the fields, orchards, or forests of the tract it is invading and specimens are sent for identification to specialists. The odds are greatly in favour of its being unknown to science. Instances of this state of affairs are numerous, and it may be said that, leaving out of account the butterflies and one or two other groups which have received attention, it is easier to pick up a new species than to collect one that is known. The moth known as *Arbela tetraonis* Moore, about whose life-history I wish to put on record a few notes, furnishes an illustration of the aptness of the above remarks, since although new to the Indian Museum Collections and rare in collections generally, its larva has been known for some years as a destructive bark eater in *Casuarina* (*Casuarina equisetifolia*) plantations on the eastern seaboard of Madras. There may, however, be said to be some excuse for its having remained so long undescribed, since it belongs to a family of moths closely allied to the *Cossidæ* which have been little studied and the life-histories of whose members are little known, the larvæ often living in the interior of the woody portions of trees. The moths are rarely seen; in colouration they often greatly resemble the surfaces upon which they rest, and being poor fliers they do not move about much and, owing to the method of living of the larvæ, they are difficult to breed out. The pupal stage of the English Goat Moth is known and has been described, but very little is known about the pupæ of other members of the *Cossid* family, and practically nothing is on record about the Indian *Arbelidæ*. The description of the pupal stage of this insect given in the paper is therefore of some interest and importance.

After noting on the members of the families represented in the Indian Museum, including an unnamed specimen, which is labelled 'de Nicéville, Calcutta, 1891,' and which is not unlike the insect here dealt with, the paper gives a description of the larva, pupa, and moth*; and then alludes to the portions of the life-history at present known and describes the method of feeding of the larva. This is important. The

* This insect has since been very kindly identified for me by Mr. G. C. Dudgeon as *Arbela tetraonis* Moore. E.P.S., 2nd November, 1903.

caterpillar feeds entirely upon the bark, building for itself covered ways under which it takes shelter. These galleries, which resemble glorified termite galleries, are composed entirely of the excreta bound together with fine silk. These covered ways are very conspicuous upon the bark of the tree, being from $\frac{1}{3}$ rd to $\frac{1}{2}$ " in breadth externally, and from 9" to as much as 18" in length, and reddish brown in colour. An infested tree can always be told by the presence of these galleries which doubtless serve to protect the caterpillar from the attacks of birds and other predaceous foes. The bark is eaten away either in thin irregular-shaped patches in the neighbourhood of the galleries or gnawed down to the wood beneath the covered ways. These latter run up or down the tree or may nearly or quite encircle it. When the insect is plentiful the trees are killed out by it. On becoming full fed the larva leaves the bark and bores right into the wood until it reaches the centre of the tree where it pupates. On maturing, the pupa by means of rows of spines with which it is encircled, wriggles and pulls itself along the gallery in the wood until it reaches the outside; it then pushes through the covered way till about $\frac{1}{3}$ rd of its length protrudes. The anterior end then splits down and the moth escapes. Moths emerge between March and July.

The insect appears to be fairly common in Chatrapur (Ganjam), Godaveri, Cuddalore, Nellore (S. Arcot), and in North Arcot. In these places valuable Government Casuarina plantations exist, formed either with the object of stopping the encroachment of the shifting sand dunes on to the cultivated lands, or on to roads, etc., or to provide wood and fuel for the local population for whom little other wood save that of palm trees exists. It will be seen, therefore, that the attacks of an insect of this nature are of importance since they may ruin the result of many years' work. Unfortunately the insect is not alone but has other insect allies which aid it in the work of destruction.

In a discussion which followed Mr. Pargiter, Vice-President, stated that when stationed in the Sunderbuns some years ago he had seen a larva which appeared to live and feed in a very similar manner to the *Arbela* larva described by Mr. Stebbing.

LIBRARY.

THE following books have been added to the Library during the months of July and August 1903 :—

Abu Othman Amr Ibn Bahr Al-djahiz Basrensis. Tria Opuscula auctore Abu Othman Amr Ibn Bahr Al-djahiz Basrensi quae edidit G. van Vloten. *Lugduni Batavorum*, 1903. 8°.

Presd. by the University of Leyden.

Albemarle, Earl of. The Albemarle Papers. Being the correspondence of William Anne, Second Earl of Albemarle . . . With an appendix of letters from Andrew Fletcher, Lord Justice-Clerk, to the Duke of Newcastle, 1746-1748. Edited with introduction . . . by C. S. Terry. 2 vols. *Aberdeen*, 1902. 4°. *Aberdeen University Studies*, No. 7.

Anderson (Peter John) Rectorial Addresses delivered in the Universities of Aberdeen, 1835-1900. *Aberdeen*, 1902. 4°.

Aberdeen University Studies, No. 6.

Presd. by the Aberdeen University.

Appaya Dikshita. Kuvalayānanda Kārikās or the Memorial verses of Appaya Dikshita's Kuvalayānanda. Edited and explained with an English tika commentary and translation . . . by P. R. Subrahmanya Sarmā. *Calcutta*, 1903. 8°.

Presd. by the Editor.

Bhārata-Yuddha. Oudjavaansch—Heldendicht uitgegeven door Dr. J. G. H. Gunning. [Text] 's-Gravenhage, 1903. 4°.

Presd. by the Koninklijk Instituut voor de Taal-, Land-en Volkenkunde van Nederlandsch Indië.

British Museum. Catalogue of the Sanskrit Manuscripts in the British Museum. By C. Bendall. *London*, 1902. 4°.

Presd. by the Trustees of the British Museum.

Castanhoso (Miguel de) The Portuguese Expedition to Abyssinia in 1541-1543 . . . With some contemporary letters, the short account of Bermudez, and certain extracts from Correa. Translated and edited by R. S. Whiteway. [With a bibliography of Abyssinia.] *London*, 1902. 8°.

Hakluyt Society's Publication, 2nd Series, No 10.

Presd. by the Government of India, Home Department.

Garrett (A.) Notes on the Caves of Udayagiri and Khandgiri.
[Calcutta, 1902.] Fol.

Presd. by the Government of Bengal.

Ghulam Husain Khān, Sayid. A Translation of the *S̥ir Mutaqherin* :
or View of modern times, being an history of India from the year
1118 to the year 1194 . . . of the Hedjrah ; containing the reigns of
the seven last Emperors of Hindustan, and . . . an account of the
English Wars in Bengal . . . down to the year 1783, etc. [Trans-
lated by — Raymond, afterwards called Haji Mustafā.] 4 vols.
Calcutta, [1902.] 8°.

Hoffmann (Rev. J.) Mundari Grammar. Calcutta, 1903. 8°.

Presd. by the Government of Bengal.

Jackson (Lieut. R. P.) Historical Records of the XIII Madras Infan-
try. [London,] 1898. 8°.

Presd. by the XIII Madras Infantry.

Muralidhur Roy. Sree Krishna, etc. Calcutta, 1901. 8°.

Presd. by the Author.

Newman (W.) & Co. Newman's Guide to Darjeeling and its surround-
ings, . . . With a chapter on Tibet and the Tibetans. Illustrated,
Calcutta, 1900. 8°.

Polo (Marco.) The Book of Ser Marco Polo . . . translated and edited
. . . by Col. Henry Yule . . . Third edition, revised throughout
. . . by Henri Cordier, etc. 2 vols. London, 1903. 8°.

Pratt (H. S.) Monograph on Ivory Carving in Burma. (With a
plate.) Rangoon, 1901. 8°.

Rājaçekhara. Rāja-Çekhara's Karpūra-mañjarī. A drama . . .
edited in the original Prākṛit, with a glossarial index, and an
essay on the life and writings of the poet by S. Konow . . . Transla-
ted into English with notes by C. R. Lanman. Cambridge, Mass.
1901. 8°.

Harvard Oriental Series, vol. IV.

Presd. by the Harvard University.

Rammohun Roy, Raja. The English Works of Raja Rammohun Roy.
Edited by Jogendra Chunder Ghose. 3 vols. Calcutta, 1901. 8°.

Ranade (M. G.) Rise of the Maratha Power. Bombay, 1900. 8°.

Stebbing (E. P.) A note on the Sandal wood boring insects of Madras.
Calcutta, 1903. 8°.

Stebbing (E. P.) Insect pests of the Sugarcane in India. [*Calcutta*, 1903.] 8°.

Extract from Indian Museum Notes, vol. V, No. 3.

Presd. by the Author.

Yule (Col Henry) and Burnell (A. C.) Hobson-Jobson: a glossary of Colloquial Anglo-Indian words and phrases . . . New edition, edited by W. Crooke. *London*, 1903. 8°.

Zoological Society of London. Catalogue of the Library of the Zoological Society of London. Fifth edition. *London*, 1902. 8°.

Presd. by the Zoological Society of London.



JOURNAL

OF THE

ASIATIC SOCIETY OF BENGAL,



Vol. LXXIII. Part II.—NATURAL SCIENCE.

No. 3.—1904.

Materials for a Flora of the Malayan Peninsula.—By SIR GEORGE KING, K.C.I.E., LL.D., F.R.S., late Superintendent of the Royal Botanic Garden, Calcutta, and JAMES SYKES GAMBLE, Esq., C.I.E., M.A., F.R.S., late of the Indian Forest Department.

No. 15.

[Read March 2nd, 1904.]

In the last of these contributions thirty genera of *Rubiaceæ* were described. In the present one descriptions are given of the twenty-three remaining genera. Our account of the species of *Psychotria* ought to have been included here. But, owing to an unfortunate circumstance, it has been necessary to keep it back for publication in the next paper of the series. In the accompanying key to the genera, *Psychotria* is however included. The species described in the present paper number 123, and of these 47 are believed to be new.

Ovary 2-celled with 2 ovules in each cell, or imperfectly 4-celled with 1 ovule in each cell, always pendulous from about the middle of the septum; calyx-limb truncate; drupe with 2 or 4 pyrenes; flowers umbellate; corolla-lobes narrow, valvate in bud; scandent shrubs

... 31. COELOSPERMUM.

Ovules solitary in each cell; ovary 2- to many-celled:—

Radicle superior:—

Ovules pendulous from the apex of the cell:—

Fruit composed of several cohering woolly pyrenes;
stamens inserted on the mouth of the corolla-
tube:—

Pyrenes 4 to 9: corolla imbricate, calyx-limb
deciduous: shrubs or trees ... 32. GUETTARIA.

Pyrenes 12 to 24: corolla valvate; calyx-limb
persistent, cupular: shrubs or trees ... 33. TIMONIA.

Fruit 2-celled, consisting of 2 dry small indehiscent
cocci; herbs with connate setaceous stipules ... 34. KNOXIA

Ovules pendulous from the septum near its apex:—

Drupe with 2 free or cohering pyrenes; trees or
shrubs with axillary inflorescence:—

Stipules equal: shrubs (often climbing); drupe
didymous and 2-seeded or sub-globose and (by
abortion) 1-seeded; seeds oblong ... 35. CANTHUM.

Stipules unequal, (one very large); seeds cup-
shaped; a tree ... 36. MESOPTERA.

Radicle inferior:—

Ovules on the septum of the ovary:—

Corolla-lobes imbricate in bud:—

Ovary 2-celled, each cell with an ovule on the
middle of the septum; flowers ebracteate, in
small supra-axillary clusters, 5-merous: calyx-
lobes as long as the tube, thickened and persis-
tent, stamens 5, inserted near the base of the
corolla-tube; style short; stigma fusiform; fruit
boldly 10-ridged; a shrub ... 37. GARDENIOIDSIS.

Corolla-lobes twisted in bud:—

Ovary 2-celled, each cell with one ovule (in one
species with 2 ovules); flowers 5-merous; style
short, pubescent; stigmas stout and grooved:
fruit with scanty pulp; seeds plano-convex, often
cupped ... 38. WEBERA.

Ovary 2-celled, each cell with one ovule inserted
near the middle of the cell, not basilar; flowers
4-merous (5-merous in one species of *Ixora*);
style long, slender, glabrous, exserted; stigmas
slender, smooth; fruit globose or didymous with
leathery or pulpy pericarp; pyrenes 2, coriaco-
ous, each with a single plano-convex seed:—

Style exserted but never twice as long as the
corolla-tube; stigma thicker than the style,
bifid: stipules and bracts of the inflores-
cence coriaceous, usually small, the latter
not sheathing; leaves usually coriaceous ... 39. IXORA.

Style very slender much longer (often twice

as long) than the corolla-tube; stigma not thicker than the style (sometimes thinner), usually entire; stipules and bracts of the inflorescence large and membranous (the latter sheathing); leaves membranous ... 40. *PAVETTA*.

Corolla-lobes valvate in bud :—

Stamens 4 or 5, usually inserted on the mouth of the corolla (rarely in the tube); ovules usually inserted below (rarely above) the middle of the septum, amphitropous; fruit a 2- or 4-celled berry or a drupe with 2 or 4 pyrenes; trees or shrubs, (sometimes scandent):—

Flowers united by their calyx-tube into more or less fleshy heads :—

Heads many-flowered, ovoid, solitary or in axillary or terminal umbels or panicles; seeds obovoid or reniform ... 41. *MORINDA*.

Heads few-flowered, sub-spicate in terminal panicles; seeds thin, orbicular ... 42. *RENNELLIA*.

Flowers free :—

Flowers unisexual :—

Calyx-limb cupular; throat of corolla glabrous, stamens included in its tube; flowers terminal and axillary; berry 1- to 2-seeded; seeds sub-globose, peltate ... 43. *PRISMATOPHYTES*.

Calyx-limb annular, truncate, entire or 5-toothed; throat of corolla woolly and bearing the stamens; flowers in axillary heads; drupe globose; seeds compressed ... 44. *GYNODORON*.

Flowers bisexual :—

Calyx-limb truncate, entire or obscurely lobed; throat of corolla glabrous or hairy; flowers in umbels; fruit a berry or drupe with 2 to 4 pyrenes; seeds obscurely trigonous ... 31. *COCLOSPERMUM*.

Stamens 4, inserted on the throat of the corolla; style filiform; stigma capitate or bifid; ovules inserted on the middle of the septum; fruit a crustaceous or coriaceous dehiscent mericarp; seeds oblong or ovoid with ventral groove; herbs ... 45. *SPERMACEAE*.

Ovules basilar, erect :—

Corolla-lobes inflexed-valvate in bud :—

Stamens 4 or 5, inserted in the corolla-tube; style-arms 2, twisted; fruit capsular, compressed or globular, containing 2 dorsally compressed, winged or cupped pyrenes often

pendulous from a columnella; seeds compressed, the testa membranous; foetid climbing shrubs ... 46. *PAEDERIA*.
 Corolla-lobes valvate in bud; stamens usually 4, but sometimes 5 to 7, inserted near mouth of the corolla; ovules cuneate, anatropous; drupe with 2 or more pyrenes:—

Flowers axillary and terminal, solitary or in small fascicles; anthers 4, sub-sessile:—

Calyx-limb dilated, unequally 4- to 6-lobed; drupe with 2 pyrenes; foetid terrestrial shrubs ... 47. *SAPROSMA*.

Calyx-limb truncate; drupe with 2 pyrenes; epiphytes with tuberos honey-combed stems 48. *HYDNOPHYTUM*.
 Flowers solitary, capitate or fascicled, axillary or terminal:—

Flowers solitary; calyx with 4 rather long lobes; stamens 4 to 7; creeping herbs often with cordate leaves ... 49. *GEOPHILA*.

Flowers numerous, in heads surrounded by many large thick involucres; calyx-limb entire; style-arms 2; stamens 4 or 5 ... 50. *CEPHAELIS*.

Flowers in axillary fascicles or condensed cymes, calyx-limb 3- to 6-fid or entire and truncate; stamens 4 to 6; style-arms 3 to 9: leaves distichous, not cordate; pyrenes 3 to 9 51. *LASIANTHUS*.

Flowers in terminal (rarely axillary) corymbose or paniced, rarely capitate, never involucre cymes:—

Calyx-limb short, 4- or 5-toothed; corolla-tube usually long and curved; seeds orbicular, very concave on the ventral surface ... 52. *CHASALIA*.

Calyx-limb short, 4- to 6-toothed; corolla-tube usually short, straight; seeds plano-convex ... 53. *PSYCHOTRIA*.*

31. *COELOSPERMUM*, Blume.

Scandent glabrous shrubs; the young branches often compressed. *Leaves* coriaceous, elliptic, oblong or obovate, with few and indistinct nerves; stipules short, broad, connate below, acute or bifid at the apex, caducous and leaving an annular scar on the branch. *Flowers* in 3-6-flowered paniced umbels. *Calyx-tube* short, campanulate or hemispheric; the limb membranous, truncate or obscurely lobed, sometimes deciduous. *Corolla* coriaceous, clavate in bud, funnel-shaped or salver-shaped; the limb with 4 or 5 linear-oblong or lanceolate, sub-acute, patent or reflexed lobes longer than the tube, in bud valvate, the edges and apices often recurved. *Stamens* 4 or 5, on the throat of the corolla;

* The descriptions of the species of this genus will be printed in No. 16 of the present series of papers.

filaments slender; anthers linear, versatilo; exserted. *Ovary* 2-celled or imperfectly 4-celled; style filiform; stigmas 2, linear-lanceolate. *Ovules* 2 in each cell in the 2-celled species and 1 in each cell in the 4-celled species, on fleshy placentas. *Fruit* depressed-globular, dry or fleshy, containing 2 or 4 pyrenes.—*DISTRIB.* Malaya and Australia—about 10 species.

Limb of calyx membranous, deciduous: cells of ovary 2,				
each with 2 or more ovules	...	...	...	1. <i>C. truncatum</i> .
Limb of calyx coriaceous, permanent: cells of ovary 4,				
cells uni-ovulate	...	...	...	2. <i>C. scandens</i> .

1. *COELOSPERMUM TRUNCATUM*, King & Gamble. A shrubby glabrous creeper: youngest branches thinner than a goose-quill, pale-brown, terete. *Leaves* coriaceous, elliptic-oblong, or sub-obovate, shortly and rather obtusely acuminate, the base cuncate; both surfaces (when dry) dark-brown with a tinge of olivaceous, dull; the midrib depressed on the upper, prominent on the lower; main-nerves about 4 pairs, curving upwards, slender, distinct on the lower surface; length 3 to 4 in., in breadth 1·25 to 2·5 in.; petiole ·3 to ·5 in. *Stipules* small, transversely oblong, very short (often only ·05 in. long), pale; coriaceous, 2-lobed. *Panicles* about 1 in. long and twice as broad, ternately umbellate on the apex of naked compressed peduncles as long as or longer than the leaves: the umbels with 5 or 6 spreading flowers, minutely but deciduously bracteolate at the base. *Flowers* ·4 in. long, on unequal pedicels shorter than themselves. *Calyx-tube* campanulate, the limb membranous, truncate or obscurely 5-toothed, deciduous, ·1 in. long, *Corolla* ·35 in. long, clavate in bud, the tube short, hairy within, the throat glabrous, the lobes 5, valvate in bud, their apices inflexed. *Stamens* 5, inserted in the throat of the corolla. *Anthers* linear, exserted. *Ovary* 2-celled with ovules 2 (or more?) in each cell. *Coelospermum scandens*, Hook. fil. Fl. Br. Ind. III. 159 *in part*. *Trisciadia truncata*, Hook. fil. in Gen. Plant. II. 69; Fl. Br. Ind. III. 94. *Webera truncata*, Roxb. Fl. Ind. ed. Carey and Wall. II. 538. *Stylocoryna truncata*, Wall. Cat. 8403. *Cupia truncata*, DC. Prod. IV. 394. *Pseudixora truncata*, Miq. Fl. Ind. Bat. II. 210.

PENANG: Wallich. SINGAPORE: Mainyay (K.D.) 933.

2. *COELOSPERMUM SCANDENS*, Blume Bijl. 994. Scandent: the young branches cylindric, pale-brown, thinner than a goose-quill. *Leaves* broadly elliptic, or obovate-elliptic, much narrowed to the base; midrib and 4 or 5 pairs of spreading nerves faintly depressed on the upper surface, slightly prominent on the lower; length 2·5 to 5 in.; petioles ·35 to ·6 in. *Stipules* less than ·1 in. long, narrow. *Peduncles* usually longer than the leaves, slender, compressed, bearing at the apex three pedunculate few-flowered umbels. *Flower-pedicels* unequal, shorter than

the flowers. *Calyx* campanulate, less than .1 in. long, the mouth truncate, usually with 5 minute teeth. *Corolla* four times as long as the calyx, clavate in bud, salver-shaped, coriaceous; the tube slender, longer than the 5 reflexed linear-oblong valvate lobes. *Anthers* as long as the corolla-lobes, much exserted. *Ovary* 4-celled, each cell with a single ovule. *Fruit* depressed-globular, .4 in. across and .35 in. long, glabrous, shining, smooth but with 4 shallow ventral grooves and a minute apical areolus: pyrenes two, each 2-seeded. DC. Prod. IV. 468; Hook fil. Fl. Br. Ind. III. 159 (in part).

MALACCA: *Griffith* (K.D.) 3087. SINGAPORE: *Ridley* 109; *Pullett* 623. PERAK: *King's Collector* 3992, 7248.

The material is imperfect and we describe the characters of the ovary and ovules with some hesitation.

32. GUETTARDA, Linn.

Trees or shrubs. *Leaves* sometimes three in a whorl; stipules deciduous. *Flowers* secund on the branches of axillary forked pedunculate cymes. *Calyx-tube* short; the limb tubular, toothed, usually deciduous. *Corolla* with a long cylindric straight or curved tube, the limb with 4 to 9 lobes imbricate in bud. *Anthers* 4 to 9, linear, subsessile, included within the glabrous tube. *Ovary* with 4 to 9 elongate cells, with a solitary ovule in each cell; style filiform; stigma sub-capitate. *Drupe* more or less globular, crowned by the short calyx-limb; endocarp 4- to 9-celled, perforated near the apices of the cells. *Seeds* pendulous, oblong cylindrical or curved, testa membranous, albumen scanty or none. —DISTRIB. About 45 species; mostly American.

1. GUETTARDA SPECIOSA, Linn. Sp. Pl. 991. A small evergreen polygamous tree; young branches as thick as a goose-quill, deciduously puberulous. *Leaves* membranous, broadly obovate or ovate, cuspidate, narrowed to the rounded or sometimes minutely cordate, rarely acute base; upper surface pale-brown when dry, glabrous; the lower pale-greenish, puberulous, minutely reticulate; main-nerves 7 to 8 pairs, little curved, spreading, thin but rather prominent on the lower surface, faint on the upper; length 4 to 8 or 10 in.; breadth 3 to 7 in.; petioles .5 to 1.5 in.; stipules lanceolate or oblong, deciduous, .3 in. long. *Cymes* axillary or from the axils of fallen leaves; few-flowered, little-branched, on puberulous peduncles 1.5 to 2.5 in. long. *Flowers* 1.5 to 2 in. long, some sessile others on short pedicels. *Calyx* about .2 in. long, minutely velvety; tube short-grooved; limb widely cupular, truncate entire or faintly and irregularly toothed. *Corolla* salver-shaped, many times longer than the calyx, softly pubescent outside; the tube narrow; the limb 1 in. in diam. divided into 7 or 8 obtuse lobes. *Style* glabrous stigma conical. *Drupe* depressed-ovoid or turbinate, woody, globose,

obscurely lobed, 4- to 6-celled, about 1 in. in diam. Lam. Ill., t. 154 f. 2; Roxb. Fl. Ind. I. 686. Wall. Cat. 6219; W. & A. Prod. Fl. Pen. Ind. 422; Wight Ic. t. 40; Kurz For. Flor. Burm. II. 37; Hook. fil. Fl. Br. Ind. III. 126. *Cudumba jasminiflora*, Sonner. Voy. Ind. II. t. 128. *Nictanthus hirsuta*, Linn. Sp. Pl. 8. *Jasminum hirsutum*, Willd. Sp. Pl. I. 36.—Rheede Hort. Mal. t. 47, 48.

In all the provinces—on the sea-coasts.—DISTRIB. Shores of the tropics of old and new worlds.

33. TIMONIUS, Rumph.

Shrubs or trees: stipules ovate-lanceolate, deciduous: leaves more or less coriaceous. *Flowers* rather small, polygamo-dioecious, in axillary cymes. *Male* cymes with few or many secund flowers. *Female* 1- to 3-flowered, the pedicels bibracteolate. *Calyx-tube* short; the limb cupular, persistent. *Corolla* coriaceous, pubescent, funnel-shaped; the throat and the tube within glabrous; limb with 4 or 5 (rarely with 10) lobes, valvate in bud or nearly so. *Stamens* as many as the lobes of the corolla, inserted by short filaments in the tube; anthers linear, dorsifixed. *Disk* small, hispid. *Ovary* many-celled; stylo short, thick, hairy, with several more or less united linear (often unequal) branches; *ovules* solitary in each cell, pendulous. *Fruit* ovoid or globose, usually 4-grooved, composed of 12 to 24 or even 30 small elongated 1-celled 1-seeded pyrenes cohering by their sides and sunk in a 4-armed, placentiform mass, the whole being enclosed in an epicarp crowned by the remains of the calyx. *Seeds* cylindric, straight, rarely curved, with thick funicles and membranous testas; albumen scanty or absent: cotyledons small, radicle long.—DISTRIB. About 30 species, Tropical Asiatic and Polynesian.

Female flower solitary on a long peduncle:—

♂ peduncles long, slender, glabrous; leaves glabrous
except the nerves beneath; fruit 4-grooved,
glabrous 1. *T. Jambosella*.

♂ peduncles short, rusty-pubescent; leaves rusty-
pubescent beneath; fruit not grooved, rusty-
pubescent 2. *T. Wrayii*.

Female flowers in small pedunculato cymes ... 3. *T. Rumphii*.

Species of which ♂ flower and fruit are unknown:—

Stipules triangular, acuminate 4. *T. laxus*.

Stipules cupular, the mouth with several unequal
linear points 5. *T. malaccensis*.

1. TIMONIUS JAMBOSILLA, Thwaites Enum. Pl. Ceyl. 153. A small ever-green tree or shrub; young branches thinner than a goose-quill, brown when dry, glabrous or sparingly silky. *Leaves* coriaceous, their margins sometimes recurved, lanceolate, elliptic-lanceolate, or elliptic, acuminate, the base narrowed, cuneate; both surfaces dull-brown when

dry, glabrous; the lower paler, faintly reticulate; main-nerves 5 or 6 pairs, curving upwards, prominent and silky on the lower surface, less prominent and glabrous on the upper; length 2·5 to 4 in.; breadth 1 to 2·5; petioles ·1 to ·3 in.; stipules lanceolate, acuminate, silky, slightly exceeding the petioles. *Male* cymes 3- to 12-flowered, on peduncles ·35 to ·75 in. long. *Female* flowers solitary, on peduncles longer than those of the males: the calyx 4-gonous; subreccolate, the mouth with 4 shallow obscure teeth. *Corolla* hypocrateriform, ·3 to ·5 in. long, the throat valvate. *Anthers* slightly exerted. *Disk* large. *Stigmas* 4, *Fruit* at first ellipsoid, but when peridepressed-globose, 4-gonous, subtruncate, about ·35 in. across, crowned by the calyx-limb and large disk; crustaceous; covered by a smooth pericarp: the placentas 4, cruciate, each bearing about 6 ovules sunk in pits. *Bedd. Ic. Pl. Ind. Or. t. 190*; *Hook. fil. Fl. Br. Ind. III, 127. T. flavescens*, *Baker Fl. Maurit. 144. Nelitris Jambosella*, *Gaertn. Fruct. I. 134, t. 90 (excl. syn.). Helospora flavescens*, *Jack in Trans. Linn. Soc. XIV. 127, t. 4, f. 3*; *DC. Prod. IV. 391*; *Miq. Fl. Ind. Bat. II. 234. Euphyrena glabra*, *W. & A. Prod. 423. Bobea glabra*, *Korth. in Ned. Kruidk. Arch. II. 211. Polyphragmon flavescens*, *Kurz For. Fl. Burm. II. 38. Guettarda? peduncularis*, *Wall, Cat. 6222*; *Don. Gen. Syst. III. 551. G. Brunonis* and *G. missionis* *Wall. Cat. 6220, 6221.*

In all the provinces: common.—DISTRIB. Andaman Islands Ceylon, Malay Archipelago.

VAR. *Finlaysonian*; leaves elliptic or elliptic-oblanccolate, shortly acuminate or acute, 3 to 5·5 in. long, the petioles ·3 to ·6 in. long, fruit, nearly ·5 in. in diam. *T. Finlaysonian*, *Hook. fil. Fl. Br. Ind. III. 127. Guettarda Finlaysonian*, *Wall. Cat. 6223. G. peduncularis*, *Wall. Cat. 6222. Timonius*, *Wall. Cat. 8446.*

SINGAPORE: *Wallich, G. Thomson, Ridley 2762. PENANG: Curtis 3388. PERAK: King's Collector 1529, 6209. ANDAMAN ISLANDS: King's Collector.*

2. TIMONIUS WRAYI, King & Gamble, n. sp. A tree 20 to 50 feet high; young branches as thick as a goose-quill, dark-brown when dry, the leaf-cicatrices large, distinct. *Leaves* coriaceous, elliptic or obovate-elliptic, sometimes rhomboidal, the apex acute, the base much narrowed into the long petiole; upper surface olivaceous-brown when dry, glabrous everywhere and shining; the lower paler, dull, the nerves and midrib adpressed rusty-sericeous, otherwise glabrous; main-nerves 6 or 7 pairs, only slightly curved, ascending, very bold on the lower surface like the midrib, somewhat depressed on the upper; length 5·5 to 8 in.; breadth 2·25 to 4·5 in.; petiole ·6 to 1·5 in.; stipules lanceolate, acuminate, sparsely sericeous, about ·5 in. long. *Male cymes* pedunculate, dichotomous, 6- to 8-flowered, the branches bracteate, short, spreading,

everywhere densely rusty-pubescent: the peduncle about .5 in. long; flowers secund, sessile. *Calyx* .3 in. long, cylindric, campanulate with 4 broad blunt unequal lobes, densely rusty-pubescent outside. *Corolla* coriaceous with wide short tube and 4 blunt, concave, slightly imbricate lobes nearly as long as the tube, rusty-pubescent outside. *Anthers* 4, included, linear, sessile. *Female flower* not seen. *Fruit* solitary on a peduncle longer than that of the male cyme, ellipsoid or globose, crowned by the large calyx and with a single oblong bract at its base, minutely rusty-pubescent, .6 in. in diam. when dry. *Seeds* about 12, in pits on the cruciform placentas.

PERAK: Wray 3200, King's Collector 5168.

This species is very distinct from the others described here. Its nearest ally is one from New Guinea, to which Dr. Scheffer gave the MS. name *Polyphragmon sessile*. But the latter has smaller leaves, more hairy below and with rather more main-nerves; the petioles moreover are shorter, and the fruits have peduncles less than .1 in. long.

3. TIMONIUS RUMPHII, DC. Prod. IV. 461 A small tree. Young branches twice as thick as a crow-quill, striate, sparsely pubescent at first, finally glabrous. *Leaves* thinly coriaceous or membranous, narrowly elliptic, somewhat oblanceolate, shortly and bluntly acuminate, much narrowed at the base: upper surface dark-brown when dry, usually glabrous except for a few hairs on the midrib; the lower paler, minutely reticulate and with fine white adpressed-sericeous hairs; main-nerves 8 or 9 pairs, slightly curved, ascending, thin and faint on the lower surface, almost obsolete on the upper; length 3.5 to 5.5 in.; breadth, 1.5 to 2 in.; petiole .25 to .4 in.; pubescent; stipules lanceolate, caudate-acuminate, shorter than the petioles. *Male cymes* many-flowered pubescent, with many divergent trichotomous branches; the flowers .3 to .5 in. long, secund, sessile, pubescent; *calyx* campanulate .05 in. long. *Female cymes* trichotomous, on peduncles 1 to 1.25 in. long, and sometimes bearing small leaves. *Flowers* in threes, the middle one sessile, the two lateral pedicellate, .4 in. long. *Calyx* with a subulate bracteole at its base, about as long as the pedicel; the tube narrowly campanulate 4-grooved, densely tomentose, somewhat constricted at the base of the less hairy limb; lobes of limb 4, ovate, subacute, spreading. *Corolla* coriaceous, .3 in. long, twice as long as the calyx, outside adpressed-pubescent, inside glabrous; the tube cylindric; the mouth with 4 blunt lobes. *Anthers* 4, linear-oblong, sessile. *Style* stout, grooved by the pressure of the anthers, stigmatic lobes small. *Fruit* ellipsoid to subglobose, tetragonous, crowned by the erect calyx-lobes, densely covered with short white deciduous pubescence, .35 in. long: the placentas cruciate bearing many seeds, each enclosed in a woody pyrene. Hook.

fl. Fl. Br. Ind. III. 127: Wall. Cat. 6217. *Bobea Wallichiana*, Korth in Ned. Kruidk. Arch. II. 211.—Rumph. Herb. Amb. III. 216 t. 140.

In all the provinces: common;—DISTRIB. Malay Archipelago.

Near *T. Jambosella*, but with more hairy leaves, more numerous main-nerves and hairier inflorescence. The female flowers are in small cymes instead of being solitary as in that species.

4. *TIMONIUS LAXUS*, King & Gamble, n. sp. A tree 20 to 30 feet high; young branches thicker than a crow-quill, covered with coarse short rusty-deciduous hairs, the leaf-cicatrices bold. *Leaves* thickly membranous, narrowly elliptic-obovate, shortly acuminate, the base cuneate: upper surface dark-brown when dry, glabrous; the lower paler, minutely rusty-pubescent especially on the nerves and stout midrib; main-nerves 5 or 6 pairs, curved upwards, bold on the lower surface, slightly depressed on the upper; length 3·5 to 5 in.; breadth 1·5 to 2·25 in.; petioles ·1 to ·15 in.; stipules about ·35 in. long, triangular with long apices, the midrib rusty-pubescent. *Male cymes* on slender pubescent peduncles 1 to 2 in. long, with 2 diverging 1- to 2-flowered branches and a sessile flower at the fork. *Flowers* 3·5 in. long, those on the branches on pedicels ·3 in. long. *Calyx* cupular, subentire, less than ·1 in. long. *Corolla* thickly coriaceous, outside with dense yellowish-brown silky tomentum, inside nearly glabrous, the tube cylindric, the mouth with 4 broad blunt lobes one-third of the length of the tube. *Female flowers* and *fruit* unknown.

PERAK: *King's Collector* 10609.

This has been collected only once and its female flowers and fruit are unknown. It appears to be near *T. Jambosella* but differs in its hairy leaves and lax, long-peduncled male cymes.

5. *TIMONIUS MALACCENSIS*, King & Gamble, n. sp. A small tree? Young branches slender, obtusely 4-angled, clothed in dense pale minute tomentum. *Leaves* membranous, broadly oblanceolate or elliptic, bluntly and shortly acuminate, narrowed to the base; upper surface glabrous, the midrib alone minutely rufous, puberulous when young, pale-brown when dry; the lower paler, reticulate, with sparse slender pale hairs, the midrib and main-nerves cinereous-tomentose; main-nerves 5 or 6 pairs, little curved, ascending; length 3·5 to 4·5 in., breadth 1·5 to 1·75 in.; petioles ·15 to ·2 in.; stipules shortly cupular the mouth with several unequal filiform processes, two being very long. *Cymes* 2 or 3 in the uppermost leaf-axils, about 6-flowered, one quarter of the length of the leaves, tomentose; their peduncles ·35 to ·6 in. long. *Flowers* densely pubescent outside, their pedicels ·05 in. long. *Calyx* tomentose, slightly more than ·1 in. long, campanulate: the mouth with 4 broad, triangular, spreading lobes. *Corolla* nearly twice as long as the

calyx, salver-shaped, pubescent outside, glabrous inside except the villous throat; limb with 4 ovate-lanceolate sub-acute lobes. *Anthers* 4, subsessile in the throat, short, elliptic. *Style* stout, elongate, sparsely hairy below, divided into several broad flat truncate stigmatic lobes. *Fruit* unknown.

MALACCA: (on Mount Ophir) *Ridley* 3217.

This differs notably from *T. Rumphii* in its shorter flowers and its stipules, the leaves also differ. It has been only once collected.

Erect herbs or under-shrubs; stems terete or obtusely angled with linear lines of hairs or glabrous. *Leaves* equal, usually narrow, stipules connate with the petiole to form a truncate cup often with bristles on its mouth. *Flowers* white, pink or lilac, small, dimorphous, in corymbose cymes. *Calyx-tube* ovoid or didymous; teeth 4 minute, subequal or 1 or 2 elongate, persistent. *Corolla-tube* long, its throat villous; lobes 4, valvate in bud, with the tips inflexed. *Stamens* 4, inserted on the throat; anthers linear, included or exserted. *Ovary* 2-celled: style filiform: stigma included or exserted, 2-lobed: ovules solitary in each cell, pendulous. *Fruit* globose or oblong, small, of two semi-terete or dorsally compressed indehiscent cocci. *Seeds* with membranous testa and thick funiculus; albumen fleshy; embryo axile, the cotyledons thin and the radicle superior.—*DISTRIB.* Species about 10: Indian Malayan and Australian.

KNOXIA CORYMBOSA, Willd. Sp. Plant I. 582. Herbaceous, 1 to 4 feet high. *Stem* terete or obscurely 4-angled, little-branched, pubescent, tomentose or villous, never glabrous. *Leaves* membranous, pale-brown and somewhat olivaceous when dry, petiolate or sessile, narrowly elliptic, linear or ovate-lanceolate, tapered to each end, the apex acuminate; both surfaces hairy like the stems: main-nerves 5 to 9 pairs, rather straight, ascending, most prominent on the lower surface; length 1.5 to 5 in.; breadth .4 to 1 in.; petiole .2 to .4 in. or more. *Stipules* narrowly cupular, their edges with bristles .1 to .2 in. long. *Corymbs* on the end of the branches, shorter than the leaves, minutely bracteolate, trichotomous; the ultimate branches spicate when in fruit. *Flowers* .05 in. long, on peduncles shorter than themselves, white or purplish. *Calyx* ovoid, with 4 broad blunt triangular sub-equal teeth. *Corolla-tube* hairy within. *Fruit* less than .1 in. long, puberulous. W. & A. Prod. 439; Wight Ill. t. 123: Dalz & Gibs. Fl. Bomb. 111. Hook fil. Fl. Br. Ind. III. 128. *K. teres*, DC. Prod. IV. 569; Wall. Cat. 819 *in part*. *K. exserta*, DC. l.c. *K. umbellata*, Banks; Spreng. Syst. I. 406. *K. sumatrensis*, Wall. Cat. 6183. *K. mollis*, Br. in Wall. Cat. 820, not of W. & A. *K. stricta*, Thw. Enum. 152. *Spermacoce*? *teres* and *S. exserta*, Roxb. Hort Beng. 10; Fl. Ind. I. 367, 368: Ed. Carey & Wall. I. 373, 374. *S. sumatrensis*, Retz Obs. IV. 23, ex Cham. & Schl. in

Linnaea, III. 316 (not of Roxb. *Fl. Ind.* I. 336 ?) *Cuncea trifida*, Ham. in Don Prodr. 135.

In all the provinces.—DISTRIB. Malayan Archipelago, British India, tropical Australia.

CANTHIUM, Lam.

Shrubs (sometimes climbing), unarmed or spinous, their stipules of tenconnate. *Flowers* small, axillary, fascicled, or in corymbose, often pedunculate, cymes; sometimes polygamous. *Calyx* with short tube and short persistent or deciduous capular 4- or 5-toothed limb. *Corolla-tube* funnel-shaped, campanulate or urceolate, usually with a ring of deflexed hairs in the throat; limb 4-5-lobed, valvate in bud, finally reflexed. *Anthers* equal in number to the lobes of the limb, inserted in the mouth or throat of the corolla, sessile or on short filaments. *Disk* annular, tumid or depressed. *Ovary* 2-celled; style stout; stigma large, entire or bifid; ovules solitary in the loculi and pendulous. *Drupe* didymous or sub-globose or (when one of the carpels is suppressed) reniform, with 1-2 pyrenes, or a 2-celled putamen. *Seeds* pendulous, oblong, with membranous testa and fleshy albumen; embryo elongate, sub-terete; the cotyledons short and the radicle superior.—DISTRIB. About 80 species; in Asia, Africa, tropical Australia and Polynesia.

Flowers 1 in. long, solitary or in pairs, axillary ... 1. *C. pauciflorum*.

Flowers less than .5 in. long, in axillary cymes:—

Spiny straggling or scandent shrubs with more or less hairy leaves:—

Leaves rarely so much as 1.5 in. long, with 3 pairs of main-nerves, the remains of the calyx on the top of the fruit inconspicuous ... 2. *C. parvifolium*.

Leaves 2 to 3 in. long with 5 pairs of main-nerves: fruit crowned by the large calyx-tube ... 3. *C. molle*.

Unarmed trees or shrubs, glabrous or nearly so:—

Corolla-tube wide, short:—

Fruit much compressed, obovate, about .15 in. long; pyrenes not keeled: whole plant quite glabrous ... 4. *C. confertum*.

Fruit ellipsoid, smooth, obscurely 4-angled, somewhat compressed, 1 in. or more in length: pyrenes prominently keeled on the back, not warted; leaves with a few adpressed hairs on their lower surface ... 5. *C. glabrum*.

Corolla salver-shaped, the tube very narrow. Fruit much compressed, didymous, minutely velvety, .25 to 6 in. long: pyrenes warted, not keeled: leaves quite glabrous ... 6. *C. didymum*.

1. *CANTHIUM PAUCIFLORUM*, King & Gamble, n. sp. A spiny glabrous shrub 15 to 20 feet high: young branches thicker than a

crowquill, pale, terete; spines few, slender, curved, shorter than the petioles, supra-axillary. *Leaves* membranous, elliptic-ovate, shortly and somewhat obtusely acuminate, the base cuneate; both surfaces pale olivaceous-brown when dry, dull; main-nerves 4 to 5 pairs, spreading, somewhat prominent on the lower surface but evanescent at the tips, almost obsolete on the upper; length 4 or 5 in.; breadth 1.5 to 2.25 in.; petioles .15 to .25 in.; stipules small, broadly triangular. *Flowers* about 1 in. long, solitary or in pairs on a short minutely bracteolate axillary branch. *Calyx* .2 in. long, cupular-campanulate, the mouth with 5 short broad acute teeth. *Corolla* with a wide cylindric tube .5 in. long, having a ring of hairs inside near the base, otherwise glabrous; the limb with 5 lanceolate erect or spreading lobes half as long as the tube. *Anthers* exserted, narrowly oblong, inserted by short filaments in the glabrous throat. *Ovary* 2-celled; style exserted; stigma mitriform, oblong, 2-partite. *Fruit* nearly 1 in. long, pulpy, smooth, crowned by the large wide calyx-tube. *Plectronia pauciflora*, K. & G. MS.

PERAK: *Scortechini*, 62.

At once distinguishable by its large flowers, solitary or in pairs.

2. *CANTHIUM PARVIFOLIUM*, Roxb. Hort. Beng. 15: Fl. Br. Ind. I. 534. A rambling spiny shrub often subscandent or scandent; young branches thicker than a crow-quill, angled, at first densely rusty adpressed-pilose, ultimately often sub-glabrous; spines supra-axillary, .05 to .2 in. in length, straight or curved, pubescent at the base, the tips glabrous and shining. *Leaves* small, subcoriaceous, greenish when dry, ovate or elliptic, acute, the base cuneate; upper surface glabrous; the lower often sparsely hairy; the three pairs of slightly curved ascending main-nerves and the midrib pubescent usually on both surfaces; length .75 to 1.5 in.; breadth .5 to .75 in.; petioles .05 to .15 in.; stipules broad and short with an acute abrupt point. *Flowers* .2 in. long, in small axillary clusters, on short pedicels. *Calyx* cupular-truncate, entire, or minutely 4- to 5-toothed. *Corolla* several times longer than the calyx: the tube widely tubular in bud and constricted below the limb, when expanded the tube globular, glabrous outside, but with a ring of dense deflexed white hairs inside; the limb with 4 or 5 lanceolate deflexed lobes. *Anthers* partly exserted, ovate, on short filaments. *Stigma* mitriform, sulcate. *Fruit* when ripe the size of a small cherry or black currant, glabrous. DC. Prod. IV, 474. Hook. fil. Fl. Br. Ind. III, 135. *C. scandens*, Blume Bijdr. 966; DC. Prod. IV, 475. *C. horridum*, Blume Bijdr. 966; DC. Prod. IV, 474; Miq. Fl. Ind. Bat. II, 255; Hook. fil. Fl. Br. Ind. III, 135. *Plectronia parvifolia* and *P. horrida*, Kurz. For. Fl. Burm. II, 36. *Gardenia rigida*, Wall. Cat. 8257 in part. *C. zizyphinum*, Wall. Cat. 8288 A. C. Rubiaceae, Wall. Cat. 8288

B. *Hyptianthera rhamnoides*, Zoll. et Mor. in Zoll. Syst. Verzeichn. 60.
Dondisia horrida, Korth. in Ned. Kruidk. Arch. II, 236.

In all the provinces: not uncommon.

We have here reduced Blume's species *C. horridum* to the older one of Roxburgh; for we can find no character to separate the two, the form of the spines the size of the fruit, and the amount of pubescence hitherto relied upon being as a matter of fact inconstant.

3. *CANTHIUM MOLLE*, King & Gamble, n. sp. A straggling spiny shrub (? scandent); all parts more or less densely pale rusty-pubescent; the young branches thinner than a goose-quill, dark-brown, more or less 4-angled; spines stout, supra-axillary, much curved downwards, .2 to .6 in. long. *Leaves* thickly membranous, ovate to ovate-lanceolate, shortly acuminate, the base cuneate or rounded; main-nerves about 5 pairs, spreading, slightly prominent on the lower surface when dry, obsolete on the upper; length 2 to 3 in.; breadth .75 to 1.5 in.; petioles .15 to .2 in.; stipules broadly triangular, apiculate, very short. *Flowers* .2 in. long, on pedicels nearly as long, in small axillary cymes or on short, minutely bracteolate, sometimes leaf-bearing, axillary branches. *Calyx* small, cupular, with 5 small acute teeth. *Corolla* with a wide tube glabrous outside, but inside with a ring from the throat of long deflexed white stout hairs: the lobes of the limb about as long as the tube, narrowly oblong, glabrous, deflexed. *Anthers* sessile, shortly oblong, exserted. *Style* exserted; stigma large, ovoid-globose, ridged. *Fruit* unknown.

SINGAPORE: in the Bot. Garden Jungle; *Ridley* 2859.

4. *CANTHIUM CONFERTUM*, Korth. in Ned. Kruidk. Arch. II, 235. A shrub? everywhere glabrous; young branches rather thicker than a crow-quill, pale brown and striate when dry. *Leaves* coriaceous, olivaceous when dry, elliptic or elliptic-lanceolate, shortly and bluntly acuminate, the base narrowing into the petiole; both surfaces dull, the reticulations obsolete; main-nerves 3 (rarely 4) pairs, oblique, ascending, scrobiculate at the axils, rather faint on both surfaces; length 2.5 to 4 in.; breadth 1.25 to 1.75 in.; petioles about 3 in., winged in the upper half; stipules triangular, acuminate, much shorter than the petioles. *Cymes* sessile, shorter than the petioles, the very short axis bearing a few minute bracts and 6 or 8 flowers on pedicels .1 in. long. *Flowers* .25 in. long. *Calyx* very short and cupular, with 5 often minute teeth. *Corolla* coriaceous, rotate, the tube very short: the 5 lobes broadly triangular with thickened edges, reflexed, villous inside and bearing between the lobes 5 ovate exserted anthers on short filaments. *Style* .1 in. long, bearing a large capitate-peltate corrugated stigma. *Disk* large, thick, cushion-like. *Fruit* solitary, on a thin peduncle .15 in. long, compressed, obovate, smooth, cushion-like, glabrous. *Hook. fil. Fl. Br.*

Ind. III, 133. *C. glomerulatum*, Miq. Fl. Ind. Bat. Suppl. 585. *Memecylon pauciflorum*, Wall. Cat. 4114.

MALACCA: *Griffith* (K.D.) 2973; *Maingay* (K. D.) 862, 942. PENANG: *Wallich*, *Curtis* 1119, 694. SINGAPORE: *Ridley* 302, 358, 1895, 4124, 4893, 9421, 9518, 9857. JOHORE: *King and Hullett*. PAHANG: *Ridley* 2245. PERAK: *Scortechini*.

5. *CANTHIUM GLABRUM*, Blume Bijdr. 967. A small unarmed tree: young branches thinner than a goose-quill, 4-angled, pale-brown when dry, glabrous. *Leaves* thickly membranous or sub-coriaceous, elliptic or ovate-elliptic, olivaceous and dull when dry, shortly and rather abruptly acuminate, the base slightly and abruptly narrowed, or broad and rounded; upper surface glabrous, the lower with some white subadpressed hairs, especially by the sides of the stout midrib and larger nerves; main-nerves 6 to 8 pairs, spreading, slightly curved, inconspicuous on the upper and only slightly conspicuous on the lower surface; length 5 to 7 in.; breadth 2 to 3 in.; petiole 4 to 6 in. *Stipules* broadly triangular at the base, much acuminate, shorter than the petioles. *Cymes* many-flowered, about 1 in. in diam., on short peduncles, dichotomously branched. *Flowers* pentamerous, 15 in. long, their pedicels slightly shorter. *Calyx* shortly campanulate or cupular, the mouth undulate and with 5 small triangular teeth. *Corolla* widely tubular, constricted at the throat, the limb with 5 deep valvate broadly lanceolate acute spreading or reflexed lobes. *Anthers* ovate, on short filaments in the throat, with a line of vertically deflexed stout white hairs just below them. *Stigma* large, sub-globular, rather turbinate, corrugated. *Ovary* 5-celled. *Fruit* ellipsoid, pulpy, 4-angled (when dry) often compressed, smooth outside, the two enclosed pyrenes triangular, the inner face of each being flat, the outer faces deeply grooved so as to leave a bold central keel. DC. Prod. IV, 478: Hook. fil. Fl. Br. Ind III, 133. *Plectronia glabra*, Kurz For. Fl. II, 35. *Vangueria? atroviridis*, Wall. Cat. 8412. *Rubiacea*, Wall. Cat. 8303.

In all the provinces: common.

This species is easily distinguished from *C. didymum* by its short widely tubular corolla slightly constricted just below the limb, that of *C. didymum* being hypocrateriform with a narrow tube. The fruit of this is also large and quite glabrous.

6. *CANTHIUM DIDYMU*, Gaertn. fil. Fruct. III, 94. A tree: young branches without spines, nearly as thick as a goose-quill, 4-angled, at first brown, but afterwards pale, smooth, the nodes thickened. *Leaves* thinly coriaceous, glabrous, narrowly elliptic or ovate-lanceolate, occasionally sub-orbicular, the apices sub-acute, acute or shortly and bluntly acuminate, usually much narrowed at the base, but sometimes rounded; upper surface dark-brown when dry, shining, the lower paler: main-nerves 3 to 5 pairs, slightly curved, ascending, thin but prominent on

the lower surface as is the midrib, faint on the upper; length 2·5 to 6 in.; breadth 1·5 to 3·5 in.; petioles ·25 to ·3 in.; stipules ·25 in. long, triangular, with broad base and narrowly acuminate apex. *Cymes* subsessile or on short peduncles (·25 to 1 in. long) sometimes puberulous; branches longer than the peduncles, spreading, corymbose, crowded, many-flowered. *Flowers* about ·25 in. long, on unequal slender pedicels. *Calyx* less than ·1 in. long, narrowly campanulate; mouth with short acute teeth or truncate. *Corolla* salver-shaped, the throat villous: the mouth with 5 blunt oblong deflexed lobes as long as or longer than the tube. *Anthers* narrowly oblong, on filaments half their length, inserted on the throat, exerted and deflexed. *Style* glabrous; stigma subquadrate, notched or bifid. *Fruit* variable, always compressed and more or less didymous, usually somewhat obovoid or obovoid-ellipsoid, ·25 to ·6 in. long, minutely velvety: pyrenes with hard dark warted putamen. Roxb. Fl. Ind. I, 535: W. & A. Prodr. 425; DC. Prod. IV, 473; Wall. Cat. 8413; Hook fil. Fl. Br. Ind. III, 132; Trimen Fl. Ceyl. II, 343. *Electronia didyma*, Kurz For. Flor. Burma. II, 35. *Psydrax dicoccos*, Gaertn. Fruct. p. 125, t. 26; DC. Prod. IV, 476. *Vangueria dicocca* Miq. Fl. Ind. Bat., II 250. *Webera cymosa*, Willd. Sp. p. 1224. *Indeterm.* Wall. Cat. 9069.

In all the provinces, very common.

The South Indian species *C. umbellatum*, Wight, Ic. 1034 is, in my opinion, only a form of this species.

Doubtful Species.

7. *CANTHIUM GRISEUM*, King & Gamble. A shrub? Young branches nearly as thick as a goose-quill, striate and purplish-brown when dry. *Leaves* membranous, narrowly elliptic, tapering to each end; upper surface dark, sparsely strigose when young, afterwards glabrous; lower surface cinereous with pale curved hairs, especially on the midrib and 4 or 5 pairs of rather prominent little-curved ascending main-nerves; length (when young) 2 to 2·5 in.; breadth ·75 to 1·25 in.; petioles ·2 to ·25 in.; stipules broadly triangular, acute, much shorter than the petioles. *Flowers* ·2 in. long, pedicellate, crowded on short multi-bracteolate axillary branches longer than the petioles, the pedicels ·15 to ·2 in. long, pubescent. *Calyx* one-third the length of the corolla, rotate, with 5 long narrow spreading lobes. *Corolla* much pointed in bud, with a short wide tube puberulous outside but densely hairy inside; the 5 lobes about as long as the tube, triangular, acuminate, sub-erect. *Anthers* sub-sessile in the tube, included, elliptic. *Stigma* large, globose, ribbed. *Fruit* unknown.

LANKAWI; *Curtis* 2804.

Only once collected. Has a strong superficial resemblance to *Vangueria spinosa* Roxb.

36. MESOPTERA, Hook fil.

A tree with stout terete branches and large, very coriaceous leaves: stipules large, coriaceous, unequal. *Flowers* minute, in dense obraceolate axillary cymes shorter than the petioles. *Calyx-tube* short, hemispheric, 5-toothed. *Corolla-tube* short; throat hairy; lobes of the limb short, acute, valvate in bud. *Stamens* 5, inserted on the throat; filaments short, subulate; anthers oblong, apiculate. *Ovary* 2-celled: style short, stout; stigma capitate, 10-lobed: ovules 1 in each cell, attached to the septum. *Fruit* small, 2-celled and didymous, or 1-celled and globose, smooth: pericarp coriaceous, with a thin fleshy covering. *Seeds* cup-shaped, embracing a thick horny projection from the inner angle of the cell; testa adnate to the fleshy albumen: embryo slender, cylindric, coiled in the middle of the albumen; cotyledons short, obtuse; radicle long, superior.—A single Malayan species.

MESOPTERA MAINGAYI, Hook fil. in Benth. & Hook. fil. Gen. Plantar. II. 131; Fl. Brit. Ind. III, 137. Young branches as thick as a goose-quill, deciduously rusty-tomentose. *Leaves* elliptic or broadly ovate; shortly acuminate, smooth and shining on the upper surface, rusty-tomentose on the lower; main-nerves 5 to 7 pairs, curved, ascending, depressed on the upper, bold and prominent on the lower surface; length 7 to 9 in.; breadth 4·5 to 5·5 in. *Stipules* very unequal and obtuse, with strong parallel nerves, one obliquely oblong, 1 in. in length, the other shorter and rounded; petiole ½ in. long, very stout. *Cymes* less than ½ in. in diam. in flower, but in fruit 2·25 in. in diam. and much branched, pubescent. *Fruit* when didymous ½ to ¾ in. across; when single-seeded and globular about half as much.

MALACCA: Maingay (K.D.) 939.

Known only from Maingay's two specimens in Herb. Kew. The above description is mainly copied from Sir Joseph Hooker's.

37. GARDENIOPSIS, Miq.

Shrubby or sub-arboreous, glabrous, with stout branches. *Leaves* very coriaceous, oblanceolate, many-nerved; stipules lanceolate, caducous. *Flowers* in small somewhat supra-axillary clusters without bracts or bracteoles. *Calyx* small, its tube cylindric; the limb with 5 spreading lobes. *Corolla* much larger than the calyx (1 in. or more in length); its tube widely cylindric, less than half as long as the limb; lobes of limb large, ovate, imbricate. *Stamens* 5, inserted near the base of the corolla-tube; the anthers linear, acuminate, included. *Style* short, stigma fusiform acute; ovary 2-celled with 1 ovule in each cell. *Fruit* broadly ovoid, rugulose, with 10 broad bold ridges, its sub-truncate apex

surrounded by the enlarged thickened incurved calyx-lobes, 2-celled, 2-seeded. **DISTRIB.**—One or perhaps two species, both Malayan.

GARDENIOPSIS LONGIFOLIA, Miq. in Ann. Mus. Lugd. Bat. IV. 250 and 262. A small tree 10 or 12 feet high: young branches as thick as a goose-quill, pale-brown. *Leaves* coriaceous, oblanceolate, gradually narrowed, in their lower three-fourths, to the stout petiole; main-nerves 15 to 20 pairs, slightly curved upwards and interarching .1 in. from the slightly recurved edges, the intermediate nerves are numerous but fainter, all prominent on the lower surface and depressed on the upper; both surfaces yellowish-brown, the lower paler and reticulate, length 6 to 16 in.; breadth 1.5 to 3.5 in.; petioles .3 to .5 in. long; stipules narrowly lanceolate, acuminate, .4 to .5 in. long. *Flowers* sessile in clusters of 5 or 6; the calyx-tube about .1 in. long: the limb about .15 in. across, its lobes ovate. *Fruit* .4 to .6 in. long.

MALACCA: Derry 960. **PERAK:** *Scortechini* 1234; *Wray* 2832, 3693; *King's Collector* 2361, 2850, 6934; *Ridley* 9722. **PAHANG:** *Ridley* 2661. **NEGRI SEMBILAN:** *Ridley* 10081. **DISTRIB.**—Sumatra.

There is what appears to be a distinct species of this in Borneo (*Hariland* 3011) with longer narrower calyx-lobes and fruit 1.25 in. long.

38. WEBERA, Schreber.

Trees or shrubs with thinly coriaceous or membranous leaves drying black. *Flowers* in terminal paniculate cymes, usually on bi-bracteolate pedicels. *Calyx-tube* campanulate or urceolate, the limb 5-toothed or 5-partite. *Corolla* cylindric or narrowly funnel-shaped; its tube shorter, equal to or longer than the lobes of the limb; throat glabrous or with a line of hairs; limb 5-lobed, narrowly oblong, spreading or reflexed, twisted in bud. *Stamens* 5, linear, inserted by short filaments on the throat. *Style* short, usually pubescent; *stigma* long, spindle-shaped or ligulate, grooved, exserted. *Ovary* 2-celled, each cell with a single or at most with 2 ovules. *Fruit* baccate, with little pulp, 2-celled; each cell with a single plano-convex seed often cupped on the plane surface: testa various, albumen fleshy or horny; embryo small, cotyledons leafy. **DISTRIB.**—About 20 species, all tropical.

The genus *Webera*, as understood in Hooker's *Flora of British India*, is composed of two sets of plants, one with 2 or more ovules in each cell of the ovary, the other with only a single ovule in each. The former are, in that work, formed into the section *Euwebera*. In these *Materials* the same plants are described under the genus *Stylocoryna* of Cavanilles. By other authors they have been treated as a genus either under the name of *Tarennia*, Gaertner or of *Chomelia*, Linn. (not of Jacquin and Velloso). The species with single ovules in each cell are, in the *Flora of British India*, grouped in a section named *Pseudizora*. Here they are treated under the generic name *Webera*. The two sections, *Euwebera* and *Pseudizora*, are

thus, on account of their ovulation, removed to distant positions in the family of *Rubiaceæ*.

Lobes of the corolla longer than its tube :—

Apices of the corolla-lobes acuminate, reflexed in bud and forming a stem at the apex of the flower-bud : fruit ovoid ... 1. *W. stellulata*.

Apices of the corolla-lobes not linear or reflexed in bud ; fruit globular :—

Lobes of corolla with ciliate margins ; calyx .25 in. long, its lobes large, oblong-lanceolate, acuminate ... 2. *W. Ridleyi*.

Lobes of corolla glabrous ; calyx .15 in. long, its lobes broadly triangular, acute :—

Leaves 5 to 8 in. long, with 8 to 10 pairs of nerves ... 3. *W. Walllichii*.

Leaves 2.5 to 3.5 in. long, with 5 or 6 pairs of nerves ... 4. *W. Curtisii*.

Lobes of the corolla and its tube of equal length ... 5. *W. odorata*.

Lobes of the corolla shorter than its tube :—

Cymes trichotomously paniced, on peduncles several inches in length :—

Calyx a little over .1 in. long, the limb with 5 short blunt teeth ; leaves glabrous with 8 to 10 pairs of nerves ... 6. *W. grandifolia*.

Calyx .15 in. long, the limb with 5 deeply linear lobes as long as its tube ; leaves puberulous beneath, with 8 to 16 pairs of nerves ... 7. *W. longifolia*.

Cymes condensed, with very short peduncles :—

Leaves glabrous and with 16 to 18 pairs of sub-horizontal nerves ; lobes of calyx linear-lanceolate, longer than the tube ... 8. *W. Wrayi*.

Leaves with scattered adpressed hairs on the under surface, especially on the midrib and 8 to 10 pairs of nerves ; lobes of calyx less than half as long as its tube, triangular, sub-acute ... 9. *W. Yappii*.

1. *WEBERA STELLULATA*, Hook. fil. Fl. Br. Ind. III. 104. A shrub : young branches much thinner than a goose-quill, dark-coloured, subterete, glabrous. *Leaves* thinly coriaceous, oblong-elliptic to elliptic, shortly acuminate at the apex, cuneate at the base, upper surface glabrous, shining, very dark when dry, the midrib and nerves depressed ; the lower paler and dull, sometimes puberulous when young, but usually glabrous ; main-nerves 7 to 10 pairs, rather faint, curved, ascending : length 4.5 to 9 in. ; breadth 1.5 to 2.5 in. ; petiole .25 to .4 in. ; stipules ovate, acuminate, .15 in. long. *Cymes* (including the short peduncle) 1 to 1.5 in. long, terminal, solitary, at first puberulous, afterwards glabrous, trichotomous, rather few-flowered ; the bracteoles

linear-lanceolate, persistent. *Flower-pedicels* shorter than the calyx, bracteolate. *Calyx* about .15 in. long, narrowly campanulate, cut about half-way down into 5 acute triangular lobes. *Corolla* .4 in. long; the tube cylindric, only .1 in. long; the limb .3 in. long, its lobes imbricate, oblong, acuminate with free reflexed linear points; throat slightly hairy. *Anthers* linear, acuminate, on short filaments, included. *Ovary* with two 1-ovuled cells; *style* much shorter than the fusiform hairy included stigma. *Fruit* broadly ovoid or sub-globular, crowned by the calyx-lobes, glabrous, 4 in. long. *Seeds* 2. *Stylocoryne Webera*, Wall. Cat. 810 I (in part). *Pavetta aristata*, Wall. Cat. 6169.

PENANG: *Wallich*. MALACCA: *Griffith* (K.D.) 3086; *Maingay* (K.D.) 850. SELANGOR: *Ridley*, 10220. PERAK: *King's Collector*, 973, 4309, 5951, 6169, 10228; *Wray*, 458, 1094, 3745.

Some of the specimens of this have the leaves of a pale olivaceous-brown colour (when dry), contrasting in this respect strongly in colour with the majority which are very dark. The species is well-marked by its corolla, the tube of which is only one-quarter as long as the oblong lobes of the limb, while the five linear points of the latter are reflexed and form a kind of star at the apex of the flower-buds. The lobes do not appear to expand, for in all the specimens I have seen they remain convolute.

2. WEBERA RIDLEYI H.H.W. Pearson MSS. in Herb. Kew. A low glabrous shrub; young branches pale-brown, obtusely 4-angled. *Leaves* thinly coriaceous, narrowly elliptic, acute or shortly acuminate, the base cuneate; both surfaces olivaceous-brown, shining (especially the upper) when dry, main-nerves 10 to 14 pairs, curved, spreading, faint but distinct on both surfaces; length 5.5 to 7 in.; breadth 2 to 3 in.; petioles .4 to .7 in.; stipules broadly triangular, acute, about .2 in. long. *Cymes* several together, terminal, in short pedicels, trichotomous, few-flowered; the branchlets angled and with a few permanent boat-shaped acute bracteoles. *Flower* pedicels about as long as the calyx, bracteolate near the apex. *Calyx* .25 to .3 in. long, campanulate, the limb as long as the tube, deeply divided into 5 oblong-lanceolate acuminate lobes. *Corolla* not much longer than the calyx; the tube short; the limb three times longer and deeply divided into 5 oblong, acute, contorted lobes with ciliate margins. *Anthers* 5, inserted on the throat in a band of hair. *Ovary* with two uni-ovulate cells; *style* very short; stigma fusiform, sulcate, glabrous. *Fruit* fusiform, glabrous, the calyx-scar apiculate.

SINGAPORE: at Chan Chu Kang, *Ridley*, 6147. JOHORE: *King*, 602, PERAK: *King's Collector*, 4585, 4615.

Only once collected and not in fruit; flowers white. A species near *W. Wallichii* but with longer corolla lobes ciliate at the margin.

3. *WEBERA WALLICHII*, Hook fil. Fl. Br. Ind. III, 105. A shrub 4 to 8 feet high, glabrous except the branches of the inflorescence and the calyx: young branches thinner than a goose-quill, usually dark-coloured, obscurely 4-angled. *Leaves* membranous, oblong-elliptic, oblong, or elliptic, rarely oblanceolate, the apex shortly acuminate, the base cuneate; both surfaces more or less darkly olivaceous when dry, the midrib rather bold; main-nerves 8 to 10 pairs, slightly curved, ascending, thin and only slightly prominent; length 5 to 8 in.; breadth 2 to 2.75 in., petiole .4 to .6 in. *Stipules* broadly triangular, acuminate, .25 in. long. *Panicles* terminal, much branched, shortly pedunculate, about 1.25 to 2.5 in. long including the peduncle, and equally broad branches and their divisions puberulous, cymose; bracteoles triangular acute, about 1 in. long. *Flowers* .4 to .6 in. long, on compressed pedicels longer than the calyx. *Calyx* .15 in. long, bracteolate (often bibracteolate) at the base, shortly campanulate, with 5 broadly triangular acute teeth, puberulous externally. *Corolla* .45 in. long, glabrous, salver-shaped, the short tube with a belt of hair inside: the lobes linear-lanceolate, longer than the tube, reflexed. *Anthers* 5, exserted, linear-oblong, the apex sub-acute, the base blunt and prolonged beyond the attachment to the short filament. *Style* cylindric, hairy in the middle: stigma as long as the style, compressed, exserted. *Fruit* fusiform, glabrous, reticulate when dry, shining, not ridged, crowned by the small calyx, .4 in. long and .3 in. in diam. *Seeds* 2. *Stylocoryne Webera*, Wall. Cat. 840, I (for the most part). *Pavetta weberæfolia*, Wall. Cat. 6182 A, in part B.

MALACCA: *Griffith* (K D.) 3084, 3004; *Maingay* (K.D.) 851.
PERAK: *Wray*, 3745; *King's Collector*, 1932, 2516, 2921, 2794, 5032, 5957, 10228; *Scortechini*, 429.

4. *WEBERA CURTISII*, King, n. sp. A small shrub; all parts glabrous except the cinereous-puberulous inflorescence. *Leaves* coriaceous, narrowly elliptic, shortly acuminate, the base cuneate; both surfaces drying dark olivaceous-brown, the lower paler; main-nerves 5 or 6 pairs, rather straight, ascending: length 2.5 to 3.5 in.; breadth .9 to 1.35 in. petiole .15 to .3 in.; stipules ovate or ovate-lanceolate, much acuminate. *Cymes* terminal, sub-sessile, only about 1 in. in diam. each way, trichotomous, few-flowered, the short branches and the flower-pedicels cinereous-puberulous, angled; pedicels slightly longer than the calyx; *Calyx* .1 in. long, campanulate; the limb with 5 acute triangular erect lobes. *Corolla-tube* widely cylindric, not much exceeding the calyx, and about one-third of the length of the 5 imbricate, oblong, blunt, reflexed lobes of the limb. *Style* shorter than the lobes of the limb, but exserted on account of their reflexion; clavate, grooved. *Ovary* 2-celled: cells each with a single ovule. *Fruit* globular, crowned by the small

calyx-scar, glabrous, .2 in. in diam. when dry. *Seeds* 2, plano-convex, the plane surface with a large pit.

KEDAH: *Curtis*, 2545, 2546. LANGKAWI: *Curtis*, 2805. PERAK: *Wray*, 3612.

5. *WEBBERA ODORATA* Roxb., Hort. Beng. 15: Fl. Ind. I, 699. A short shrub 6 to 10 feet high; young branches cinereous, sub-terete, *Leaves* membranous oblong-elliptic (often narrowly so), shortly acuminate, the base much narrowed; both surfaces dull, glabrous, the lower pubescent in *var.*, deep olivaceous when dry: main-nerves 8 or 9 pairs, faint, little curved, ascending or spreading, length 5 to 8 in.; breadth 1.5 to 3 in.; petiole .4 to .8 in.; stipules triangular, acuminate, much shorter than the petioles. *Cymes* large terminal, paniculate, trichotomous, lax, 5 or 6 inches wide and equally long, spreading; the peduncles and branches long and slender, 4-angled, cinereous-pubescent: bracteoles linear, persistent. *Flower-pedicels* as long as or longer than the flowers, pubescent. *Calyx* urceolate-campanulate, about .1 in. long; the teeth shorter than the tube, lanceolate. *Corolla-tube* slender, cylindric, .25 in. long, the lobes imbricate, clavate in bud, about the same length, narrowly oblong, acute, sub-falcate, reflexed, their upper surfaces glabrous. *Ovary* 2-celled, each cell with 2 ovules; *stigma* exserted, clavate-subulate. *Fruit* the size of a large pea, 2-celled, 2-seeded. Hook fil. Fl. Br. Ind. III, 102. *W. macrophylla*, Roxb. l.c. 697. *Pavetta weberæfolia*, Br. in Wall. Cat. 6182 A, in part. *P. cerberæfolia*, Miq. Fl. Ind. Bat. II, 279. *Stylocoryne Webera* Wall. Cat. 8401. *S. penangensis*, Miq. l.c. 207. *Cupia macrophylla* DC. Prod. IV, 394.

PENANG: *Wallich*. PERAK: *King's Collector* 3121, 3807, 4236; *Wray* 1147.

VAR. pubescens, King; lower surfaces of leaves pubescent.

PERAK: at 3400 feet: *Wray*, 474.

6. *WEBBERA GRANDIFOLIA*, Hook. fil. Fl. Br. Ind. III. 105. A shrub or small tree: young panicles obtusely 4-angled, deciduously and minutely rusty-pubescent. *Leaves* thinly coriaceous, elliptic to elliptic-oblong or oblong-oblanccolate, shortly and often abruptly acuminate, much narrowed at the base: both surfaces (when dry) brown, tinged with olivaceous, the lower slightly the paler, quite glabrous; main-nerves 8 to 12 (rarely as many as 16) pairs, thin but distinct on both surfaces, spreading, curved: length 5 to 10 (rarely 12) in.; breadth 2 to 4 in.; petiole .4 to .75 in.; stipules broadly ovate, shortly acuminate, .2 to .3 in. long. *Cymes* as in *W. longifolia*, but on shorter peduncles and with fewer bracteoles. *Calyx* slightly more than .1 in. long, flask-shaped, the limb with 5 short blunt teeth. *Flowers* as in *W. longifolia*, but slightly

shorter, and more obovate in bud; fruit as in *W. longifolia*. *Ixora grandifolia*, Br. in Wall. Cat. 6134.

MALACCA: Griffith (K.D.) 2796; Maingay (K.D.) 854. SINGAPORE; Wallich; Ridley 1800, 3764, 10411, 10852. PERAK: Wray 3001, 3377; Ridley 5557; King's Collector 763. JOHORE: Ridley, 11167.

7. *WEBERA LONGIFOLIA*, Hook. fil. Fl. Br. Ind. III, 105. A shrub, young branches thinner than a goose-quill, obtusely 4-angled, deciduously rusty-puberulous. Leaves thinly coriaceous, oblanceolate, elliptic-oblong or elliptic-lanceolate, shortly acuminate, narrowed from the middle or above it to the short petiole; both surfaces drying olivaceous-brown; the upper glabrous and shining, the lower deciduously cinereous-puberulous, main-nerves 8 to 16 pairs, spreading, slightly prominent on the lower surface, faint on the upper, length 6 to 12 in.: breadth 2 to 3 in.: petiole 4 to 1 in.; stipules ovate, much acuminate, hairy, about 3 in. long. Cymes erect, terminal, paniculate, trichotomous, on rusty-pubescent obtusely 4-angled peduncles several inches (sometimes 9 or 10) in length: ultimate branchlets crowded: the flower-pedicels each with 2 linear bracteoles at its base. Calyx 15 in. long, narrowly campanulate, divided into 5 deep linear hairy lobes as long as the tube. Corolla pubescent, about 65 in. long; the tube cylindric, more than twice as long as the oblong obtuse lobes. Style exserted. Ovary 2-celled, each cell with one ovule. Fruit globular, glabrous, 4 in. in diam. (when dry), crowned by the long linear calyx-lobes. *Ixora longifolia*, G. Don. Gen. Syst. III, 573. *I. macrophylla* Br. in Wall. Cat. 6165 (not of Bartl.). *Pavetta longifolia*, Miq. Fl. Ind. Bat. II, 275.

PENANG: Wallich, Phillips; Ridley, 9395; Curtis 947, 1144. PERAK: King's Collector, 2737, 3825, 6220, 6632, 10662; Wray, 2081, 2864, 2885; Scurteghini, 228; Ridley, 2920. JOHORE: Ridley, 11166.

8. *WEBERA WRAYI* King, n. sp. Glabrous, except the inflorescence: young branches 4-angled, thinner than a goose-quill. Leaves thinly coriaceous, large, oblong-elliptic, shortly acuminate, cuneate at the base; both surfaces blackish-olivaceous when dry, shining, the midrib conspicuous on both, channelled on the upper; main-nerves 16 to 18 pairs, spreading, sub-horizontal, faintly visible on both surfaces; length 9 to 11 in. long; breadth 2.5 to 3.5 in.; petiole 5 in. long, narrowly winged above. Cymes terminal, umbellately paniced, about 1.25 in. long and broad; the branches few, pubescent, slender, angled, few-flowered, the bracteoles minute: pedicels shorter than the calyx, pubescent, bracteolate. Calyx 15 in. long, narrowly campanulate, the teeth linear-lanceolate, pubescent, erect, longer than the tube. Corolla narrowly funnel-shaped, puberulous outside, 35 in. long: lobes linear-oblong, blunt, about a third of the length of the tube. Stigma narrowly clavate, exserted,

glabrous. *Fruit* depressed-globular, smooth, shining, black when dry, crowned by the small calyx-scar, $\frac{1}{4}$ in. in diam. and $\frac{1}{25}$ in. long. *Seeds* 2, plano-convex with a depression on the plane side.

PERAK: *Scortechini*; *Wray*, 2477.

9. WEBERA YAPPII, King, n. sp. Young branches thinner than a goose-quill, pale-brown when dry, glabrous. *Leaves* membranous, narrowly oblong-elliptic, acuminate, the base cuneate, both surfaces olivaceous when dry, the upper quite glabrous, the midrib slightly channelled; the lower paler, glabrous but for a few scattered adpressed pale hairs chiefly along the prominent midrib and 9 or 10 pairs of curved ascending distinct nerves: length 5 to 7 in.; breadth 1.5 to 1.75 in.; petioles $\frac{1}{3}$ to $\frac{1}{2}$ in.; stipules broadly lanceolate-oblong, blunt, shorter than the petiole. *Cyme* on a short peduncle, terminal, paniculate, condensed, about 2.5 in. in diam., its branches pubescent; bracteoles few, linear. *Flower-pedicels* about as long as the calyx. *Calyx* $\frac{1}{2}$ in. long, narrowly campanulate, pubescent; its 5 lobes less than half as long as the tube, triangular, sub-acute, rusty-pubescent. *Corolla-tube* narrowly infundibuliform, about $\frac{1}{4}$ in. long, pubescent; the 5 blunt oblong lobes of the limb imbricate in bud, reflexed where expanded, glabrous. *Style* short; stigma slightly exserted, ligulate. *Fruit* the size of a small pea, glabrous. *Seeds* 2, plano-convex.

PERAK: *Yapp*. 482; *Wray* 10.

39. IXORA, Linn.

Shrubs or small trees with terete branches. *Leaves* opposite, rarely in whorls of three, often coriaceous, rarely sessile. *Stipules* interpetiolar, often with broad bases and acuminate or linear apices, deciduous or persistent. *Flowers* in terminal trichotomously branched, often corymbose *cymes*, each bi-bracteolate, rarely 5-merous. *Calyx-tube* campanulate, often narrowly so; the limb 4-toothed, persistent. *Corolla* salver-shaped: the tube narrowly cylindric much longer than the calyx, rarely widened towards the apex, the throat naked or hairy; the limb with 4, rarely 5 spreading or reflexed lobes, twisted in bud. *Stamens* as many as the corolla-lobes, and inserted on its mouth by short filaments or sessile; anthers linear or oblong usually acuminate, the base bifid, dorsifixed, erect, more or less exserted. *Ovary* 2-celled. *Style* filiform, exserted but never twice as long as the corolla-tube. *Stigma* slender, fusiform before expansion, after expansion its two arms curved and divergent; ovules solitary, peltately attached to the septum of each cell: micropyle inferior. *Fruit* globose or didymous, with 2 plano-convex or ventrally concave coriaceous pyrenes. *Seeds* of the same shape as the pyrenes; testa membranous; albumen cartilaginous

embryo curved; cotyledons foliaceous; radicle inferior.—DISTRIB. Species about 110; mostly tropical Asiatic and African.

Lobes of the calyx as long as, or longer than, its tube:—

Leaves hairy beneath:—

Calyx-lobes narrowly lanceolate, acuminate ... 1. *I. Brunonis.*

Leaves everywhere glabrous:—

Calyx-lobes broadly lanceolate, acute, unequal ... 2. *I. merguensis.*

Calyx-lobes broad, blunt, unequal; bracts not covering the calyces ... 3. *I. Kingstoni.*

Calyx-lobes ovate, obtuse, puberulous; bracts longer than the calyces and covering them ... 4. *I. multibracteata.*

Calyx-lobes narrowly lanceolate, about as long as the tube ... 5. *I. arguta.*

Lobes of the calyx shorter than its tube:—

Lobes acute:—

Tube of corolla 1 to 1·25 in. long:—

Leaves sessile, cordate at the base, 2 to 3 in.

long ... 6. *I. coccinea.*

Leaves elliptic to oblong-elliptic, not cordate,

6 to 9 in. long; their petioles 3 to 5 in.

long ... 7. *I. congesta.*

Tube of the corolla 25 to 3 in. long:—

Leaves oblong-elliptic, shortly petiolate, 3·5 to

5 in. long; cymes with many divergent branches 8. *I. undulata.*

Lobes blunt:—

Tube of corolla 1 to 1·25 in. long:—

Cymes pendulous on long slender peduncles 9. *I. pendula.*

Cymes not pendulous; peduncles 1 to 2 in. long:—

Main-nerves of leaves 15 to 20 pairs ... 10. *I. opaca.*

Main-nerves of leaves 8 to 12 pairs ... 17. *I. grandifolia*, var.
Kurziana.

• Tube of corolla 1 to 1·75 in. long:—

Cymes lax, spreading, leaves petiolate, acute at the base; branching shrubs (often tall):—

Leaves thinly membranous, their main-nerves 15 to 25 pairs ... 11. *I. Lobbi.*

Leaves coriaceous, their main-nerves 10 to 12 pairs ... 12. *I. fulgens.*

Cymes not spreading, simple unbranched shrubs

1 or 2 feet high; leaves sessile, oblanceolate,

cordate at the base:—

Main-nerves of leaves 15 to 18 pairs ... 13. *I. humilis.*

Main-nerves of leaves 8 to 10 pairs ... 14. *I. Scortechinii.*

Tube of corolla 8 in. long; cymes dense, 2 to 3 in.

in diam. ... 15. *I. stricta.*

- Tube of corolla .4 in. long; cymes lax, slightly
 branched, 1 to 1.5 in. long ... 16. *I. concinna*.
 Tube of corolla .2 to .4 in. long:—
 Cymes 2 to 4 in. across, branched, spreading:—
 Leaves coriaceous: cymes branched from the
 base ... 17. *I. grandifolia*.
 Leaves membranous; cymes on long slender
 naked peduncles 3 to 4 in. long ... 18. *I. diversifolia*.

1. *IXORA BRUNONIS*, Wall. Cat. 6136. A shrub; young branches thicker than a crow-quill, covered with short cinereous-brown tomentum. *Leaves* thinly membranous, sessile, oblanceolate, sometimes sub-panduriform, shortly caudate-acuminate, tapering much to the rounded or minutely cordate base; upper surface with the interspaces shining and glabrous, the depressed midrib and 10 to 12 pairs of rather faint curved ascending main-nerves minutely tomentose; lower surface with minute spreading pubescence especially on the prominent midrib, main-nerves and reticulations, length 5 to 10 in.; breadth 1.5 to 2.25 in.; stipules with broad ovate bases with stout midribs, and long thin linear apical tails, length (including the tails) .5 in. *Cymes* about 1.5 in. long, 12- to 20-flowered, on short tomentose peduncles, 4 to 6 collected in corymbs on the apices of the branches, their bracteoles filiform and hairy. *Flowers* sessile; calyx .15 to .2 in. long, narrowly campanulate, the 4 teeth narrowly lanceolate, acuminate, as long as the tube. *Corolla* 1 to 1.5 in. long, externally with long cinereous spreading deciduous hairs, ultimately nearly glabrous; the tube very narrowly cylindric, glabrous and ridged inside, the throat hairy: limb .5 in. across, its lobes 4, oblongo-elliptic, acute, spreading or reflexed, quite glabrous on the upper surface, sparsely hairy on the lower. *Anthers* elongate, narrow, acuminate, deflexed, longer than their filaments. *Stigma* slender, slightly exserted. *Fruit* ovoid, puberulous, .35 in. long, and .25 in. in diam. when dry. G. Don Gen. Syst. III. 573; Kurz Flora Burm. II. 20; Hook fil. Fl. Br. Ind. III. 139. *Pavetta Brunonis*, Miq. Fl. Ind. Bat. II, 270 (not of Wight Icon.)

PENANG: Wallich, (6136); Phillips; Ridley, 7682. PERAK: Wray, 3478, 3524; King's Collector, 1658. SINGAPORE: Lobb. MALACCA: Main-gay (K.D.) 858. DISTRIB. Burma; Wall. Cat. 8447.

2. *IXORA MERGUENSIS*, Hook fil. Fl. Br. Ind. III. 140. A robust shrub only 2 or 3 feet high, glabrous; stem as thick as a swan's-quill, compressed, cinereous. *Leaves* large, coriaceous, elliptic-oblong or obovate, abruptly and shortly acuminate, the base very cuneate: both surfaces olivaceous and dull; when dry the lower paler and reticulate; main-nerves 10 to 14 pairs, slender, slightly curving upwards; length 7 to 12 in.; breadth 2.25 to 4 in.; petioles .5 to 1 in., stout, channelled. *Cyme*

globose, sub-sessile, terminal, with numerous very short branches, about 3 in. in diam., dense, many-flowered, pedicellate, each flower with a lanceolate small bract. *Calyx* .15 in. long, campanulate, the 4 lobes of the limb unequal, broadly lanceolate, acute, somewhat longer than the tube. *Corolla-tube* puberulous, .6 in. long, cylindric, narrow below, somewhat wider above; the limb .6 in. across; its lobes oblong, broad, blunt, spreading, the throat with a few hairs. *Anthers* sub-sessile, narrow, apiculate. *Fruit* unknown.

MALAY PENINSULA: *Griffith* (K.D.) 3003. PUNGAH: *Curtis*, 2961. PERAK: *Wray*, 3543?

Mr. Curtis has sent from Pungah two specimens bearing the number 2961, one in Herb. Kew and the other in Herb. Calcutta. The one in Herb. Calcutta is typical *I. merguensis*; that in Kew forms the variety described below.

VAR. *Curtisii*, King & Gamble; leaves narrowly elliptic-oblong, not at all obovate; nerves about 14 pairs, curving upwards, distinct on both surfaces; length 14 in.; breadth 4.25. *Corolla-tube* about .8 in. long, cylindric, widening upwards, puberulous; its limb nearly 1 in. across; the lobes ovate-lanceolate, sub-acute, the throat hairy.

PUNGAH: *Curtis*, 2961.

3. *IXORA KINGSTONI*, Hook. fil. Fl. Br. Ind. III, 140. A shrub or small tree: young branches as thick as a duck's quill, terete, smooth and dark-coloured when dry. Leaves thinly membranous, shining and of a pale warm-brown colour when dry; glabrous, oblong or elliptic-oblong, sometimes oblanceolate, the apex with a short usually blunt point, tapered from below the middle to the short petiole; the reticulations slender; main-nerves 15 to 18 pairs, slender, spreading; length 5 to 9 in.; breadth 2 to 3 in.: petiole .4 to .5 in. channelled; stipules semilunar, broad but only about .1 to .15 in. long, the apex bearing a short bristle. *Cymes* 4 to 6, in a dense terminal corymbose panicle 3 or 4 in. in diam., each on a puberulous bracteate peduncle about .5 in. long (longer in fruit) and bearing numerous bibracteolate flowers, the bracts and pairs of bracteoles ovate-lanceolate, subcoriaceous, sub-acute, more or less persistent. *Flowers* 4-merous, sessile, crowded. *Calyx* .2 to .3 in. long; the tube short, narrow; the limb with 4 large deep broad blunt lobes longer than the tube, one usually longer than the other 3 and resembling the bracts and bracteoles in texture. *Corolla-tube* 1 to 1.25 in. long, slender, cylindric, glabrous; the limb .5 to .6 in. across, the lobes broadly obovate, obtuse, spreading. *Anthers* narrow, apiculate, reflexed, longer than their filaments. *Stigma* slightly exserted, small. *Fruit* ovoid, puberulous, crowned by the persistent calyx-lobes; length (including calyx-lobes) .7 in.: diameter .3 to .4 in. (when dry).

MALACCA: *Griffith* (K.D.) 2996; *Goodenough*, 1271. PERAK: *Scortechini*, 2030; *Wray*, 626; *King's Collector*, 733, 871, 920, 932, 2540, 3167, 4200, 5972. SELANGOR: *Ridley*, 3674, 7300; *Curtis*, 2346. JOHORE: *Curtis*.—DISTRIB. Andaman Islands.

The corolla, according to *Kunstler*, is yellowish-red. The Andamanese specimens look slightly different, and may belong to a new species. Fruit of the Andaman plant is wanting.

4. *IXORA MULTIBRACTEATA*, H. H. W. Pearson in *Kew Bull.* ed. A bush or small tree, all parts glabrous except the inflorescence; young branches thinner than a goose-quill, somewhat compressed, pale when dry. *Leaves* membranous, pale yellowish-green when dry, oblong-oblancheolate to oblong-elliptic, shortly and bluntly acuminate, much narrowed to the base; both surfaces finely reticulate, main-nerves 10 to 16 pairs, slightly curved, spreading, faint on both surfaces; length 5 to 9 in.; breadth 1.5 to 3 in.; petiole .3 to .6 in.; stipules cupular, only about .1 to .15 in. long, shortly apiculate. *Cymes* axillary and terminal, from 2.5 to 5 in. in diam. with many spreading ridged glabrous branches, and a peduncle less than 1 in. long; bracts at the bases of the branchlets broad, blunt, from .2 to .3 in. long; ultimate branchlets with numerous imbricate ovate-triangular sub-cordate obtuse puberulous 1-nerved bracts .2 in. long at their bases, and 3 to 5 flowers nearly 1.5 in. in length; flower bracteoles ovate-obtuse, nerved, about .15 in. long. *Calyx* sessile, about .25 in. long, puberulous, its lobes 4, ovate, obtuse. *Corolla-tube* puberulous outside, glabrous within, narrowly cylindric, 1 in. to 1.25 in. long; its limb nearly .5 in. across: the 4 lobes oblong, blunt, glabrous. *Anthers* longer than the very short filaments, narrowly oblong, short, apiculate, the base sagittate. *Fruit* unknown.

MALACCA: *Maingay* (K. D.) 856. PUNGAH: *Curtis* 2954. LANKAWI: *Curtis* 3408. ANDAMANS: *Helper* (K. D.) 2997. PERAK: *Scortechini*; *Wray* 3317. QUEDAH: *Ridley* 5540.

A species allied to *I. Kingstoni*, Hook. fil., but with less membranous leaves. It is readily distinguished by the numerous bracteoles at the bases of the flowers and by the large imbricate bracts at the bases of the ultimate branchlets.

5. *IXORA ARGUTA*, Br. in *Wall Cat.* 6157. A tree; all parts except the inflorescence glabrous; young branches much thinner than a goose-quill, obtusely 4-angled, glabrous, dark-coloured. *Leaves* thinly coriaceous, broadly oblanceolate, rarely obovate or elliptic, rather abruptly and shortly acuminate, the base much narrowed, both surfaces drying very dark-brown, almost concolorous, shining; main-nerves 6 or 7 pairs, curved, spreading, faint on both surfaces; length 3.5 to 6 in.; breadth 1.5 to 2.25 in.; petiole .2 to .4 in.; stipules lanceolate, linear-acuminate,

shorter than the petiole. *Cymes* solitary, terminal on peduncles 1·9 to 3 in. long, spreading, trichotomous, many-flowered, the bracteoles linear, persistent. *Flower-pedicels* shorter than the narrowly campanulate calyx. *Calyx* less than ·1 in. long, narrowly campanulate, its 4 or 5 narrowly lanceolate acute teeth as long as the tube, erect. *Corolla-tube* narrowly cylindric, ·4 or ·5 in. long: the limb with 5 oblong apiculate lobes ·2 in. long. *Stigma* narrowly fusiform (before the expansion of its lobes), slightly exserted. *Fruit* like a small pea if one-seeded; broader and with two vertical grooves if two-seeded, crowned by the small scar of the calyx, glabrous, smooth. *I. nigricans*, Hook. fil. Fl. Br. Ind. III. 149, var. *arguta*. *I. nigricans*, Wall. Cat. 6154 B. and C. only.

PERAK: Wray 2135, Curtis 1303, 980; *Kings Collector* 684, 870, 2072, 4286, 4573, 4966, 8718, 10269, 10658, 10901; *Scortechini*. KEDAH: Ridley 8299. SELANGOR: Ridley 8240. WELLESLEY: Ridley 7013; Curtis, 2451, 3206. MALACCA: Maingay (K.D.) 859.

The type specimens of this in the Wallichian Catalogue consist of two sheets distinguished by the letters A and B. The former was received from Herb. Heyne, and is therefore supposed to have come from Southern India. Sheet B is attributed to Penang. What appears to be the same plant but with somewhat broader leaves also forms B and C of No. 6154 which was distributed under the name *I. nigricans*, R. Br. Under this name (*I. nigricans*, R. Br.) there were unfortunately issued by Wallich two other plants lettered respectively 6154 A and D. These two not only differ from B and C, but also from each other. The name has however been adopted in the Flora of British India and the Wallichian No. 6154, without distinction of letters, has been taken as its basis. As the simplest solution of the confusion which has thus arisen, I have ventured to restore the MSS. name *I. arguta*, R. Br. for the plant—a common one in all the provinces—above described.

6. *IXORA COCCINEA* Linn. Sp. Pl. 159 (excl. syn.) A much branched shrub, the smaller branches of the cymes and the calyces puberulous, otherwise quite glabrous; young branches thinner than a goose-quill, pale. *Leaves* coriaceous, pale when dry, broadly ovate or elliptic, sessile, the base cordate and stem-clasping or slightly narrowed; the apices sub-acute or blunt and mucronate; nervation indistinct when dry; length 2 to 3 in.; breadth 1·25 to 1·75 in.; stipules narrowly semilunar with long straight linear stiff apices. *Cymes* several together, at the apices of the branches, each on a short peduncle, minutely bracteate and bracteolate; *calyx* less than ·1 in. long, puberulous cylindric, with 4 acute teeth shorter than the tube. *Corolla-tube* 1·25 to 1·5 in. long, narrowly cylindric; the 4 lobes of the limb broad, acute, spreading, ·25 in. long. *Fruit* fusiform, sometimes pulpy. Roxb. Fl. Ind. I, 375; W. & A. Prod. Fl. Pen. Ind. 427; Wight Icon. 153; Brand. For. Flora 275; Kurz. For. Flora, Burma II, 26; Hook. fil. Fl. Br. Ind.

III, 145. *I. grandiflora*, Br. in Bot. Reg. t. 154; DC. Prod. IV, 486. Wight in Hook. Bot. Misc. III. Suppl. t. 35. *I. propinqua*, Br. in Wall. Cat. 6119. *I. incarnata*, DC. Prod. l.c. *I. obovata*, Heyne in Roth Nov. Spec. 90. *I. Bandhuca*, Roxb. Hort. Beng. 10; Fl. Ind. I. 376; Wall. Cat. 6120; DC. Prod. l.c.; Wight Ic. 149. *Pavetta coccinea* and *P. incarnata*, Blume Bijdr. 950. *P. Bandhuca*, Miq. Fl. Ind. Bat. II, 266.

In most of the provinces; cultivated on account of its brilliant scarlet flowers.

7. *IXORA CONGESTA*, Roxb. Fl. Ind. I 387. A shrub, glabrous except the smaller branches of the cymes; young branches half as thick as a goose quill, dark-coloured. *Leaves* thinly coriaceous, elliptic to oblong, elliptic, sub-acute or shortly and bluntly acuminate, the base rounded or cuncate; both surfaces brown when dry and rather dull, the lower paler; main-nerves 12 to 20 pairs, spreading and interarching at the tips, depressed on the upper and prominent on the lower surface; length 6 to 9 in.; breadth 2.25 to 4 in.; petioles .3 to .5 in.; stipules .15 in. long, broad, shortly cuspidate. *Cyme* terminal, corymbiform, trichotomous on a short peduncle, 2.5 to 4 in. long (including the peduncle) and rather more in diam., condensed, the branches many-flowered. *Calyx* sessile or on a short pedicel, less than .1 in. long, with 4 triangular acute teeth shorter than the tube. *Corolla-tube* 1.25 to 1.5 in. long, narrowly cylindric; its limb .5 or .6 in. across, its 4 lobes spreading or reflexed, ovate-lanceolate, blunt or sub-acute, .25 to .3 in. long; *stigma* slender, slightly exserted. *Fruit* compressed, fusiform, with 2 vertical grooves, glabrous. DC. Prod. IV, 486; Wall. Cat. 6138. Hook. fil. Fl. Br. Ind. III, 146. *I. Griffithi*, Hook. Bot. Mag. t. 4325. *I. fulgens*, Wall. Cat. 6512 B. *Pavetta congesta*, Miq. Fl. Ind. Bat. II, 269.

SINGAPORE: Lobb; Anderson 92; Ridley 5674, 6911. JOHORE: King, Ridley 4168. MALACCA: Griffith (K.D.) 2984; Maingay (K.D.) 848; 848-2; Ridley 5675, 6911; Derry 8; Goodenough 1967. PENANG: Wallich; King; Curtis 1729, 1730, 2265, 2975. PERAK: Scortechini; King's Collector 675, 2448 2865, 2867, 3982, 3998; Wray. DISTRIB:—Malayan Archipelago, Burma.

Allied to *I. Lobbii*, Lond. but with more coriaceous broader leaves, with more nerves, shorter flowers in more condensed cymes. The corolla is orange or red.

8. *IXORA UNDULATA*, Roxb. Hort. Beng. 10: Fl. Ind. I, 385. A glabrous shrub or small tree, the cymes often pubescent; young branches thinner than a goose-quill, pale-brown, shining. *Leaves* coriaceous, oblong-elliptic, sub-acute, the base much narrowed; both surfaces olivaceous-brown when dry, rather dull main-nerves about 12 pairs, thin

but distinct on both surfaces, curved, spreading; length 3·5 to 5 in.; breadth 1·25 to 2 in.; petioles ·3 to 4 in., stipules triangular, acuminate, ·2 in. long. *Cymes* nearly as long as the leaves, almost sessile, branching from near the base, the branches divergent, trichotomous, many-flowered, the bracteoles few and minute, lanceolate. *Calyx* sessile, less than ·1 in. long, cylindric, with 4 ovate-acute teeth. *Corolla-tube* ·25 to ·3 in. long, narrowly cylindric; the limb ·2 in. across, its 4 lobes narrowly oblong, blunt, reflexed. *Fruit* (in Indian specimens) fusiform, smooth. Roth Nov. Spec. 91; DC. Prod. IV, 488; Wight & Arn. Prod. 428; Wight Icon. 708; Hook. fil. Fl. Br. Ind. III, 147; Wall. Cat. 6129, excl. *Herb. Ham. I. canja*, Wall. Cat. 6130.

PERAK: at elevation of 4000 feet; *Wray* 3934.

Only once collected in our region. A common species at the base of the eastern Himalaya, and in the Khasia Hills.

9. *IXORA PENDULA*, Jack in Mal. Misc, I, 11. A small shrub, all parts glabrous except the branches of the inflorescence; young branches thinner than a goose-quill. *Leaves* thinly coriaceous, oblong to elliptic-oblong, sometimes slightly oblanceolate, sub-acute, the base more or less cuncate, both surfaces pale-olivaceous when dry, smooth, the upper shining, the reticulations fine, not prominent; main-nerves 12 to 16 pairs, curved, ascending, faint on the upper surface, thin but prominent on the lower; length 9 to 11 in.; breadth 2·5 to 3·5 in.; petiole ·5 to ·75 in., stout, channelled: stipules about ·2 in. long, broadly ovate, abruptly acuminate. *Cymes* terminal, 3-branched, pendulous, often nearly as long as the leaves (half the length being slender peduncle): branches' puberulous trichotomous, with subulate bracts at the divisions; ultimate branchlets with about 9 flowers. *Calyx* under ·1 in. in length, with 4 short blunt teeth. *Corolla-tube* slender, cylindric, about 1·25 in. long, the limb about ·4 in. across, the 4 lobes oblong, blunt, reflexed. *Anthers* short, narrow, acute, sagittate at the base, longer than their filaments. *Stigma* slightly exserted. *Fruit* ellipsoid, blunt, smooth, ·3 in. long and ·25 in. in diam. Hook. fil. Fl. Br. Ind. III, 141.

In all the provinces, common.

The flowers of this are rose-coloured. The long slender drooping peduncle of the cyme has often a whorl of lanceolate bracteoles near the base, and the upper leaves of the stem are often much reduced in size. There are specimens in which the peduncle of the cyme is only 2 or 3 inches long, but usually it is twice as long.

10. *IXORA OPACA*, Br. in Wall. Cat. 6141. A small shrub, glabrous except the puberulous branches of the cyme; young branches thinner than a goose-quill, pale-brown. *Leaves* thickly membranous, oblong to elliptic-oblong, obtusely and shortly acuminate, the base rounded or

cuneate; both surfaces olivaceous when dry; the upper dark and shining; the lower paler, much reticulate, and dull; main-nerves 15 to 20 pairs, spreading, curved, prominent on the lower surface; length 4 to 7 in.; breadth 1.25 to 2.5 in.; petioles .3 to .5 in.; stipules triangular with broad bases and long linear points. *Cyme* corymbose, with many short spreading branchlets, sometimes laxly trichotomous, 2.5 to 5 in. across, terminal, on a slender erect peduncle 1 or 2 in. long. *Flowers* as in *I. pendula*, but smaller, the limb of the corolla being only .3 in. across. *Fruit* as in *I. pendula*, Jack. G. Don, Gen. Syst. Gard. III. 573. Hook. fil. Fl. Br. Ind. III. 147. *Pavetta opaca*, Miq. Fl. Ind. Bat. II. 270.

MALACCA: *Ridley* 966. PENANG: *Curtis* 3385. PERAK: *Wray* 3447: *King's Collector* 2699, 2805, 2829, 2917, 4061; *Ridley* 3071.—DISTRIB. Burma, Sumatra.

A species closely allied to *I. pendula*, Jack, but the cymes have shorter peduncles and the leaves are narrower.

11. *IXORA LOBBII*, London, Encycl. Supplem. II, 1543. A shrub, everywhere glabrous except the smaller branches of the inflorescence and the calyces; youngest branches as thick as a duck's quill, dark-coloured, shining. *Leaves* thinly membranous, oblong, oblong-lanceolate or elliptic-oblong, rarely oblanceolate, the apex acute or shortly acuminate, the base cuneate; both surfaces rather pale-brown when dry and shining; main-nerves 15 to 25 pairs, rather straight, spreading, inter-arching at the tips, slender but distinct on the lower surface, very faint on the upper; length 5 to 8 in.; breadth 1.25 to 2 in.; petioles .2 to .3 in.; stipules triangular, acuminate, about .15 in. long. *Cymes* terminal, corymbose, shortly pedunculate, 3 to 8 in. across, the bracts and bracteoles minute, lanceolate, deciduous. *Calyx* cylindric-campanulate, less than .1 in. long, its 4 broad blunt lobes shorter than the tube. *Corolla-tube* slender, cylindric; 1 to 1.75 in. long; the limb .4 to .5 in. across; its 4 lobes narrowly oblong, blunt or sub-acute, spreading; stigma slender, slightly exserted. *Fruit* ellipsoid, blunt, .25 to .3 in. long and .25 to .3 in. in diam. (when dry), smooth. *I. fulgens*, Hook. fil. Fl. Br. Ind. (not of Roxb.) *in part*. *Pavetta Lobbii*, Teysm. & Binn. in Miq. Ann. Mus. Lugd. Bat. IV. 194.

MALAYAN ARCHIPELAGO; *Helper* (K.D.) 2998. MALACCA: *Griffith* (K.D.) 2985; *Maingay* (K.D.) 845; *Derry* 10, 966; *Cuming* 2396. PENANG: *Curtis* 479; *Lobb*. WELLESLEY: *Ridley* 6991. PERAK: *Wray* 476, 952, 2891, 3449; *King's Collector* 407, 2374, 2908, 3828, 4196, 5626, 5968; *Scortechini* 96, 349. SINGAPORE: *Lobb*; *King*; *Ridley*; *Anderson* 94. KEDAH: *Curtis* 2659.—DISTRIB. Malay Archipelago.

VAR. *angustifolia*, King & Gamble; leaves narrowly oblong-lanceolate about 1 in. in width.

SINGAPORE: King. PERAK: Wray 519; Scortechini 1893; King's Collector 2718. PAHANG: Ridley 2215.

This variety comes near to *Pavetta salicifolia*, Blume, but its leaves have more numerous main-nerves, and its corolla lobes are much shorter.

12. *IXORA FULGENS*, Roxb. Hort. Beng. 10: Fl. Ind. I. 378. A shrub, all parts glabrous: young branches thicker than a crow-quill, dark, shining. Leaves coriaceous, oblong-lanceolate or oblanceolate, shortly acuminate, the base cuneate; both surfaces shining when dry, the upper dark-brown, the lower paler; main-nerves 10 to 12 pairs, curved, spreading, interarching, slender; length 3·5 to 5·5 in., breadth 1·25 to 1·5; petiole ·2 to ·3 in.; stipules ·2 in. long, triangular, the base broad, with a long linear point. Cymes terminal, corymbose, rather lax, spreading, ·3 to ·5 in. in diam., many-flowered; bracteoles triangular, minute. Calyx less than ·1 in. long, cylindric-campanulate, with 4 shallow broad teeth. Corolla-tube 1·25 to 1·5 in. long, narrowly cylindric; its limb ·8 in. across; the 4 lobes broadly ovate or lanceolate, acute, spreading. Anthers narrow, on short filaments. Fruit fusiform, somewhat 2-lobed, smooth, purple when ripe. DC. Prod. IV, 486: Wight Icon. 451: Wall. Cat. 6152; Hook. fil. Fl. Br. Ind. III. 146, not of Roxb.

SINGAPORE: Lobb 102. PERAK: Scortechini; Wray 3024; King's Collector 2949, 5075, 5522.

This species is not common. It has been confused with the much more common *I. Lobbii*, Loud. from which it differs in having about half as many leaf-nerves. It is to *I. Lobbii* that the description of *I. fulgens* given in the Flora of British India really refers.

13.* *IXORA HUMILIS*, King & Gamble, n. sp. A small unbranched glabrous shrub little more than a foot high. Leaves large, coriaceous, sessile, elliptic to sub-panduriform, the apex sub-acute, narrowed below the middle to the broadly cordate auriculate base; both surfaces brown when dry, the lower paler and with the reticulations distinct; main-nerves 15 to 18 pairs, curved, slender but distinct, spreading and only slightly curved length 9 to 12 in.; breadth 3·5 to 4 in.; stipules of opposite sides united into a short tube with a cusp on each side. Cyme terminal, 2·5 to 3 in. long (including the short peduncle), and as much across; branches few and short, bracteoles minute. Calyx under ·1 in. long, its lobes shorter than the tube, blunt. Corolla-tube about 1·5 in. long, narrowly cylindric; the limb about ·7 in. across; its 4 lobes sub-rotund, spreading. Anthers linear, apiculate, on short filaments inserted in the throat. Fruit unknown.

PENANG: *Curtis* 400. SELANGOR: *Ridley* 7422a. PERAK: *Wray* 4157; *Ridley* 7186; *Yapp* 204; *Scortechini*.

A distinct species distinguished by its short bushy habit, and its large leaves tapered to a broad cordate-auriculate base.

14. *IXORA SCORTECHINI*, King & Gamble, n. sp. An unbranched shrub about a foot in height: the stem as thick as a goose-quill, pale-brown, rather rough. *Leaves* large, almost sessile, coriaceous, broadly oblanceolate, sub-acute or blunt, narrowed from about the middle to the rounded or cordate base; upper surface brown when dry and somewhat shining; the lower pale, reticulate and dull; main-nerves 8 to 12 pairs, slightly prominent on both surfaces, curving upwards, interarching length 5·5 to 9 in.; breadth 2 to 3 in.; petioles about ·1 in. long or absent; stipules very short, broadly triangular and with an abrupt linear point. *Cymes* terminal, about 2 in. long (including the short peduncle), the branches short, puberulous. *Calyx* nearly ·1 in. long, cylindric, with 4 very broad short blunt teeth. *Corolla-tube* 1 to 1·25 in. long, narrowly cylindric, glabrous; the limb ·5 in. across with 4 blunt broad oblong spreading lobes. *Fruit* fusiform, deeply 2-grooved, smooth.

PENANG: *Curtis* 400. PROVINCE WELLESLEY: *Ridley* 6992. PERAK: *Scortichini* 1277; *Wray* 4157; *King's Collector* 3120.

15. *IXORA STRICTA*, Roxb. Hort. Beng. 10: Fl. Ind. 1, 379. A large shrub, everywhere glabrous: young branches thicker than a crow-quill, dark-brown, shining. *Leaves* thinly coriaceous, lanceolate or elliptic, lanceolate, rarely elliptic, acute or acuminate, the base cuneate; upper surface olivaceous when dry, the lower brown; main-nerves 7 or 8 pairs: obsolete on the upper surface, faint and interarching on the lower; length 2·5 to 5 in.; breadth 1·25 to 2 in.; petiole ·15 to ·2 in.; stipules ·2 in. long, triangular, with broad bases and long linear points. *Cymes* almost sessile, terminal, corymbose, dense, 2 or 3 in. in diam., bracteoles minute. *Calyx* under ·1 in. long, cylindric, broadly 4-lobed or sub-entire. *Corolla-tube* narrow, cylindric, ·8 in. long; the limb ·4 in. across, its 4 lobes oblong, sub-acute or obtuse, spreading or reflexed. *Fruit* broadly fusiform, smooth. DC. Prod. IV. 486; W. & A. Prod. 427; Wight Ic. 184; Kurz For. Fl. Burma, II. 26; Wall. Cat. 6123; Hook. fil. fl. Br. Ind. III. 145. *I. coccinea*, Bot. Mag. 169. *I. alba*, Roxb. II. cc.; Wight Ic. 707. Wall. Cat. 6122. *I. blanda*, Ker in Bot. Reg. t. 100; DC. l. c., 487. *I. incarnata*, Roxb. Fl. Ind. I. 379; DC. l. c. 486. *I. crocata*, Lindl. in Bot. Reg. t. 782; DC. l. c. 486. *I. rosea*, Wall. Cat. 6124; Bot. Mag. t. 2428, (not of Wall. in Roxb. Fl. Ind. I. 398). *I. amoena*, Wall. Cat. 6121 D.E.F.G.; Don, Gen. Syst. III. 571; Hook. fil. Fl. Br. Ind. III. 146. *I. densa*, Wall. Cat. 6150, *in part*.

MALACCA: *Griffith* (K.D.) 2986; *Maingay* (K.D.) 846, 846½, 849; *Goodenough* 1753; *Derry* 257. PERAK: *Wray* 3293, 3448; *King's Collector* 2247, 3978; *Scortechini*. PAHANG: *Ridley* 2227. SINGAPORE: *Ridley* 5004; *Lobb*. PENANG: *Wallich*; *Curtis* 1122; *Deschamps*. KEDAH: *Ridley* 7092. DINDINGS: *Ridley* 7187.—DISTRIB. British India, Burmah.

Owing to the beauty of its flowers this species is much cultivated in gardens. But it also occurs in a wild stato. The corolla is usually scarlet, but individuals with white, rosy, or yellowish corollas are frequent. As regards leaves the species varies somewhat. I can find nothing except the slightly different reticulation of the leaves to distinguish *I. amoena*, Wall., and I have therefore reduced it here. In the Flora of British India, Sir Joseph Hooker, without actually making the reduction, expresses himself in favour of it.

16. *IXORA CONCINNA*, Br. in Wall. Cat. 6149. A shrub, all parts glabrous: young branches slightly thicker than a crow-quill, pale-brown. Leaves thinly coriaceous, elliptic-oblong or elliptic-oblancoelate, very shortly and rather bluntly acuminate, the base cuneate: both surfaces slightly shining when dry, olivaceous-brown, the lower the paler; main-nerves 8 or 9 pairs, slender, slightly depressed on the upper and prominent on the lower surface; length 2·5 to 5 in.; breadth 1 to 1·75 in.; petioles ·15 to ·25 in.; stipules triangular, ·2 in. long with broad bases and long stiff linear apices; a few of the upper leaves much reduced in size. Cymes (including their peduncles) from 1 to 1·5 in. long, three or four collected at the apex of a branch, each 5- or 6-flowered; bracteoles minute. Calyx under ·1 in. long, campanulate, with 4 broad teeth shorter than the tube. Corolla-tube about ·4 in. long, narrowly cylindric; the limb about ·3 in. across, its 4 lobes oblong, spreading, blunt. Fruit about as large as a small pea, broader than long, deeply 2-grooved, glabrous. Hook. & fil. Fl. Br. Ind. III. 647. Rubiaceae, Wall. Cat. 8449.

SINGAPORE: *Wallich*; *Ridley* 8451. MALACCA: *Griffith*; *Lobb* 189; *Maingay* (K.D.) 847; *Derry* 962. PERAK: *Scortechini* 174; *Wray* 1317; *King's Collector* 3068, 3978, 3530, 4639, 5648.

17. *IXORA GRANDIFOLIA*, Zoll. & Mor. Syst. Verz. 65. A bush or small tree, quite glabrous or with the cymes puberulous; young branches pale-brown when dry, not so thick as a goose-quill (paler and thinner in some vars.). Leaves large in the typical form, sub-coriaceous, elliptic, ovate (oblong or lanceolate in vars.), obtuse or acute, the base cuneate or broadly rounded, sometimes (in vars.) minutely cordate, both surfaces brown when dry, shining, obscurely reticulate; main-nerves 8 to 12 pairs, not usually very prominent on either surface: length 8 to 10 in. (less in var. 3), breadth 3 to 5 in. (less in var. 3), petiole ·5 to ·75 in. stout (shorter in some vars.); stipules broad, ·35 in. long, cuspidate

or sometimes bifid. *Cymes* varying, always pedunculate, laxly trichotomous, or in var. 2 densely crowded, 3 or 4 in. across (much less in var. 2) the branches cinereous-puberulous. *Flowers* crowded, shortly pedicellate, glabrous, about .5 in. long, (longer in vars.). *Calyx* under .1 in. long, with 4 blunt teeth shorter than the tube. *Corolla-tube* cylindric, slender, .35 in. long. (longer in vars. 2 and 4), the limb with 4 broad blunt oblong reflexed lobes .15 in. long; stigma narrowly clavate in bud. *Fruit* broadly fusiform, smooth. Hook. fil. Fl. Br. Ind. III. 143. *I. elliptica*, Br. in Wall. Cat. 6153.

MALACCA: *Griffith*; *Maingay* (K.D.) 843. PENANG: *Wallich* 6153. PERAK: *King's Collector* 410, 4083, 4756; *Scortechini* 1368.—DISTRIB. Nicobars, *Kurz*.

A very variable species of which the following forms may be distinguished. The corolla is white.

VAR. 1 *gigantea*, King & Gamble. A tall tree, leaves very coriaceous, elliptic, obtuse at base and apex, 7 to 10 in. long and 3 to 5 in. broad; cymes (including their peduncles) 3 to 7 in. long, with spreading puberulous branches; corolla about .5 in. long.

PENANG: *Curtis*, 3384. SINGAPORE: *Ridley*, 4120. PERAK: *Wray* 2973, 3678, 3971; *King's Collector* 5609, 5466, 10294. ANDAMANS: *Heinig* 22.

This may be separable as a species. More specimens (in flower) are wanted.

VAR. 2 *coriacea*, Hook. fil. Fl. Br. Ind. III. 143 (excl. syn. *I. macrosiphon*); leaves very coriaceous, oblong-lanceolate or oblong-elliptic, sub-acute, the base cuneate; length 8 to 10 in.; breadth 2.5 to 3 in.; cymes (including their peduncles) 3 in. long or less. *Corolla* about .6 in. long. *I. coriacea*, Br. in Wall. Cat. 6151.

PENANG AND SINGAPORE: *Wallich*; *Curtis* 2486. MALACCA: *Griffith* in Herb. Wight, (K.D.) 2999; *Maingay* (K.D.) 844. PERAK: *Wray* 2140, 2626; *King's Collector* 5935. PAHANG: *Ridley* 2213.—DISTRIB. Andaman Islands.

There is in Herb. Calcutta a single specimen (in flower only) collected by *Ridley* in Pahang (Herb. *Ridley* 2213) which in most of its characters resembles this. The texture of the leaves and their nervation are however slightly different, and the flowers are somewhat longer and in less spreading cymes.

VAR 3 *arborescens*, Hook. fil. l.c.; branches thinner than a goose-quill, the bark very pale; leaves sub-coriaceous, only 4 to 6 in. long, and from 2 to 2.5 in. broad; sub-obtuse at the apex and broadly rounded at the base, the petiole only .3 to .4 in. long; cymes (including peduncle) 3 to 7 in. long, the branches long and spreading; corolla little more than .5 in. long. *I. arborescens*, Hassk. in Retzia I. 22.

MALACCA: *Griffith* Herb. Wight, (K.D.) 2987; *Derry*, 310, 571;

Cumming 2332. PERAK: *King's Collector* 4686. JOHORE: *Ridley* 4165.
—DISTRIB. Andaman Inlands.

VAR. 4 *Kurzeana*, Hook. fil. l.c.; leaves sub-coriaceous, elliptic to elliptic-oblong, the apex acute; the base rounded or cuneate; corolla 1.25 in. long. *I. Kurzeana*, Teyss. & Binn. in Nat. Tijds. Ned. Ind. 100. *I. macrosiphon*, Kurz in Trimen Journ. Bot. 1875, 327; For. Flora Burm. II. 24.

ANDAMAN ISLANDS: Kurz, *Prain's Collector*. SUMATRA, JAVA, &c.

18. *IXORA DIVERSIFOLIA*, Wall. Cat. 6146. A shrub or small tree, the branches of the inflorescence slightly puberulous, otherwise glabrous; young branches thinner than a goose-quill, pale when dry. Leaves membranous, oblong to broadly elliptic, acute or sub-acute, the base rounded or cuneate; the upper pair sometimes sessile and sub-cordate, often reduced in size, the majority with stout petioles .3 or .4 in. long; both surfaces smooth, shining, brown when dry; main-nerves 10 to 12 pairs, curved, spreading, prominent as the lower surface; length of blade 4 to 10 in.; breadth 2 to 4 in.; stipules elongated-triangular, .25 in. long (sometimes longer and sometimes blunt). Cyme 3 to 4 in. in diam. (its slender peduncle included) 3 to 6 in. long, trichotomous; the ultimate branchlets minutely bracteolate at the divisions, 2- to 3-flowered. Flowers .4 to .6 in. long, mostly on short puberulous pedicels, some sessile, glabrous. Calyx less than .05 in. long, the 4 teeth shorter than the tube, blunt. Corolla-tube narrowly cylindric, very short in the bud, afterwards lengthening to .2 to .4 in.; sometimes longer, lobes of the limb 4, narrowly oblong, sub-acute, much reflexed, .2 in. long. Stigma exserted, clavate at first, the arms afterwards divergent. Fruit ellipsoid, blunt, .3 in. long and .2 in. diam. (when dry) glabrous. Kurz. For.; Flora Burm. II. 22; Hook. fil. Fl. Br. Ind. III. 141.

PENANG: *Curtis*, 2486. PERAK: *King's Collector* 5691, 5737, 5896; (*Wray* 3491 ?); *Scortechini* 168.—DISTRIB. Burma; *Griffith* (K.D.) 2992.

The corolla of this is much shorter than those of *I. pendula*, and it is white and the leaves are often broader. The two species are closely allied. A form collected in Perak by *Wray* (No. 3491) connects the two, combining the longer corollas and peduncles which are characteristic of *I. pendula* with the general facies of *I. diversifolia*.

40. PAVETTA, Linn.

Characters of *Ixora*, but the style very slender and much longer than (often twice as long as) the corolla-tube; the stigma not thicker and sometimes even thinner than the style and usually entire; the stipules larger and sheathing, especially those of the lower part of the

inflorescence; leaves membranous.—Species about 70, in the tropics of the old world.

Large much branched shrubs; cymes corymbose pedunculate, 2 to 4 in. in diam., often in panicles:—

Leaves pubescent to tomentose beneath, ovate-elliptic, elliptic or elliptic-rotund ... 1 *P. indica*.

Leaves slightly pubescent to glabrous beneath, elliptic lanceolate or oblanceolate ... 1 *P. indica* var. *glabra*.

Small little branched or unbranched shrubs; cymes sessile or nearly so, 1 to 2 in. in diam., never in panicles: leaves pubescent beneath:—

Calyx woolly; leaves densely and softly pubescent beneath 2 *P. naucleiflora*.

Calyx glabrous or nearly so; leaves hispidulous beneath... 3 *P. humilis*.

1. *PAVETTA INDICA*, Linn. sp. Pl. 110. A shrub or small tree, young branches slender, glabrous, pubescent, or tomentose like the leaves. *Leaves* membranous, variable in form, in the Malayan specimens (var. *polyantha*) elliptic-lanceolate or oblanceolate, in the British Indian ovate-elliptic, elliptic, or elliptic-rotund; in all, except some of the latter, acute or acuminate at the apex, pubescent tomentose or glabrous beneath, the base always much narrowed; main-nerves 5 to 7 pairs, usually faint, curved; length (in Malayan specimens) 4 to 7 in.; breadth 1 to 2 in.; petiole .35 to .5 in.; stipules triangular, acuminate, shorter than the petioles, deciduous. *Cymes* terminal, shorter than the leaves, on peduncles 1.5 to 4 in. in length, corymbose, many-flowered, 2 to 4 in. in diam., often in panicles; the stipules at the bifurcations rather large and persistent. *Flowers* on pedicels about .2 in. long. *Calyx* from .05 to .1 in. long, narrowly campanulate, with 4 short triangular teeth or sub-truncate. *Corolla* .5 to .75 in. long; the tube very slender, cylindrical; the limb .3 to .4 in. across, with 4 oblong blunt lobes. *Style* much exserted, slender like the stigma. *Fruit* globular-oblong, glabrous, about the size of a pea. Wall. Cat. 6175; Blume Bijdr. 951; W. & A. Prod. 431; Wight Ic. t. 148; Miq. Fl. Ind. Bat. II. 276; Hook. fil. Fl. Br. Ind. III. 150; Trim. Fl. Ceyl. II. 349. *P. Finlaysoniana*, Wall. Cat. 6177. *P. alba*, Vahl. Symb. III. 11. *P. petiolaris*, Wall. Cat. 6786; Hook. fil. Fl. Br. Ind. III. 150. *Ixora paniculata*, Lam. Dict. III. 344. *I. Pavetta*, Roxb. Fl. Ind. I. 385; Kurz Fl. Burm. II. 18.

In all the provinces, but not common.

var. *polyantha*, Hook. fil. l.c. 150. *Flowers* numerous, crowded in puberulous or pubescent cymes; leaves thinly membranous, oblanceolate or elliptic-lanceolate, glabrous or puberulous beneath. *P. polyantha*, Wall. Cat. 6176; Bot. Regist. t. 198. *P. graciliflora* Wall. Cat. 6178. *P. petiolaris*, Wall. Cat. 6180. *P. Rothiana*, DC. Prod. IV. 491:

W. & A. Prod. 431. *P. villosa*, Heyne in Roth. Nov. Sp. 88 (not of Napl.)
Ixora tomentosa var. *glabrescens*, Kurz. Fl. Burm. II. 19.

In all the provinces: common.

The variety *tomentosa*, Hook. fl. l.e. characterised by ovate or rotund elliptic often subacute thickly membranous leaves more or less pubescent or tomentose, and with the inflorescence also pubescent or tomentose occurs chiefly in British India. The synonymy of it is as follows: *P. tomentosa*, Wall. Cat. 6173 all the sheets except E.: *P. velutina* 6174: *P. mollis* 6179; *P. canescens* 6181.

2. *PAVETTA NAUCLEIFLORA*, Wall. Cat. 6171. A shrub or small tree, young branches thicker than a crow-quill, tawny-tomentose. *Leaves* oblanceolate, shortly acuminate, narrowed from above the middle to the petiole; both surfaces olivaceous when dry; the upper at first pubescent, afterwards becoming less so, but even when adult the midrib always pubescent; the lower densely and persistently pale-pubescent, especially on the midrib and 9 or 10 pairs of oblique prominent main-nerves; length 4·5 to 7 in.; breadth 1·35 to 2·75 in.; petiole ·3 to ·75 in., pubescent. *Stipules* broadly triangular, acuminate. *Cymes* terminal, solitary, densely compound-umbellate, 1·75 in. broad and not quite so long, the branches and pedicels densely pubescent; branches divaricate with a few ovate-lanceolate bracteoles near the flowers. *Flowers* ·75 in. long, excluding the style, on unequal pedicels always longer than the calyx. *Calyx* tubular ·1 in. long, ribbed, densely pubescent, the mouth with 5 short triangular erect teeth. *Corolla-tube* narrowly cylindric, sub-glabrous; limb pubescent and with 4 oblong blunt lobes. *Fruit* globular not ridged, sparsely hairy, crowned by the small calyx, ·25 in. in diam. two-celled by abortion. *Seed* single fleshy, convex on the back; G. Don, Gen. Syst. III. 575: Hook. fl. Fl. Br. Ind. III. 152. *Ixora naucleiflora*, Kurz, For. Flora. II. 19.

PENANG: Curtis 1060, 2217, 2646, 3382. PERAK: *Scortechini*; Wray 3619.—DISTRIB. Base of Eastern Himalaya, Burma.

3. *PAVETTA HUMILIS*, Hook. fl. Fl. Br. Ind. III. 151. A small shrub with unbranched pale rough stem 6 to 12 in. long, densely pubescent at first but afterwards sub-glabrous. *Leaves* membranous, close together, oblong-ob lanceolate, shortly acuminate, much narrowed at the base; upper surface minutely rugulose when dry, glabrous, the midrib sparsely adpressed-hispid; lower surface sub-adpressed hispidulous: main-nerves 6 or 7 pairs, faint, little curved, ascending; length 3·5 to 6 in.; breadth 1·25 to 1·75 in.; petiole ·3 to ·5 in., swollen at the base, hispid; *stipules* broadly triangular, acuminate, hispid. *Cymes* solitary, terminal, sessile or sub-sessile, usually 1 to 1·5 in. in diam., dense. *Flowers* shortly pedicellate, glabrous, ·75 in. long. *Calyx* funnel-shaped, the mouth with 4 short acute teeth. *Corolla-tube* about ·6 in. long,

narrowly cylindric, the limb with 4 blunt oblong lobes. *Fruit* globular, glabrous, .25 in. in diam.

MALACCA: *Griffith* (K.D.) 3007; *Maingay* (K.D.) 855; *Hullett*, 763.

41. MORINDA, Linn.

Shrubby, sometimes scandent; rarely arborescous. *Leaves* membranous, rarely in whorls of three: stipules connate, sheathing. *Flowers* connate by their calyces, axillary or terminal, simple paniced or umbellate pedunculate heads. *Calyx-tube* short, the limb short or absent. *Corolla* salver- or funnel-shaped, coriaceous, the tube short; the limb usually 5- (rarely 4- to 7-) lobed, valvate in bud. *Stamens* equal in number to the corolla-lobes, on short filaments; anthers linear or oblong, dorsi-fixed. *Ovary* 2- or spuriously 4-celled; style included or exerted, 2-branched: ovules solitary in the ovarian cells, ascending. *Fruit* formed of the succulent enlarged calyces; the contained pyrenes 1-seeded, horny or cartilaginous, usually free but 2 or 4 of them sometimes cohering together. *Seeds* obovoid or reniform, with membranous testa and fleshy or horny albumen; the embryo terete, radicle inferior.—DISTRIB. Species about 40, all tropical.

Erect shrubs or trees, with pulpy infrutescences ... 1. *M. citrifolia*.

Large woody climbers:—

Infrutescence dry, more than 1 to 2 in. in diam., externally marked with many large deeply pitted hardened calyces ... 2. *M. lacunosa*.

Infrutescence about 1 in. in diam., pulpy, smooth, bearing externally a few long narrow soft tubular calyces ... 3. *M. rigida*.

Infrutescence about .25 in. in diam., without large protruding calyces ... 4. *M. umbellata*.

1. MORINDA CITRIFOLIA, Linn. Sp. Pl. 176. A glabrous small tree or large shrub; young branches thinner than a goose-quill, obtusely 4-angled, pale-brown. *Leaves* broadly elliptic, occasionally obovate-elliptic, shortly acuminate, the base cuncate, one of the pair opposite the peduncle often suppressed; both surfaces pale-brown when dry: main-nerves 6 or 7 pairs, curved upwards, thin but slightly prominent on both surfaces; length 5 to 10 in.; breadth 2.25 to 4.5 in.; petioles .2 to .4 in.; stipules transversely oblong or sub-orbicular, entire or 2- to 3-fid., .3 to .5 in. long. *Peduncles* axillary, solitary, about .5 in. long, each bearing a many-flowered capitulum 1 to 1.75 in. in diam. *Calyx* truncate. *Corolla* fusiform in bud: the tube .3 to .5 in. long, pubescent in the throat, otherwise glabrous: limb .5 or .6 in. across, with 5 lanceolate lobes. *Anthers* with their tips exerted, filaments woolly. *Infrutescence* when

ripe ovoid or globose, 1 to 1·75 in. long, yellow, fleshy: each pyrene 2-seeded. Roxb. Fl. Ind. I. 541; Hunter in As. Resear. IV. 35; DC. Prod. IV. 446; Ham. in Trans. Linn. Soc. XIII. 533; W. & A. Prod. 419; Wall. Cat. 8418; Brand. For. Flora, 277; Kurz, For. Fl. Burm. II. 60; Hook. fil. Fl. Br. Ind. III. 155; Trimen Fl. Ceyl. III. 354; Gaertn. Fruct. I. 29. *M. bracteata*, Roxb. Hort. Beng. 15; Fl. Br. Ind. I. 544; Ham. l.c. 534; DC. l.c. 447; W. & A. l.c.; Wight Ill. t. 126; Wall. Cat. 8419; Brandis l.c. 277.

In all the provinces: in or near cultivation, but probably in many cases not wild.—DISTRIB. Brit. India, Ceylon, Malay Archipelago.

VAR. *elliptica*, Hook. fil. l.c. Leaves narrowly elliptic-oblong, tapering to each end, shining: peduncles slender, 1 to 1·5 in. long: fruiting heads ·5 to ·75 in. diam. Wall. Cat. 8434.

In all the provinces: more frequent than the typical form.

2. *MORINDA LACUNOSA*, King & Gamble, n. sp. A powerful climber 30 to 60 feet long: young branches thinner than a goose-quill, angled, sparsely and minutely pubescent. Leaves thickly membranous, elliptic, sharply and shortly acuminate, the base cuneate; upper surfaces dark-brown when dry, glabrous except the puberulous midrib; lower paler, the reticulations very distinct; main-nerves about 8 pairs, curving upwards, very bold on the lower surface, slightly depressed and faint on the upper; length 4·5 to 6 in.; breadth 2 to 2·75 in.; petioles ·5 to 1·25 in.; stipules apiculate, only ·15 in. long. Heads about ·5 in. in diam. (when in flower) with one or two linear coriaceous bracts at their bases, solitary, on puberulous peduncles about 1 in. long, collected in twos or threes at the apices of the branches. Calyces completely confluent by their sides, irregularly cupular, the limb coriaceous, produced into a large oblique triangular lobe at one side, otherwise sub-truncate. Disk large, cushion-like, convex. Corolla unknown. Infrutescence (when ripe) globular, 1·5 in. in diam.; the surface covered with the protruding irregularly 4-sided conical enlarged calyces, each with a wide pit on its apex; individual fruits 2-celled, 2-seeded.

PERAK: King's Collector, 4320, 6030, 8254; *Scortechini*.

This is easily distinguished by its large deeply pitted infrutescence which is dry, not at all pulpy.

3. *MORINDA RIGIDA*, Miq. Fl. Ind. Bat. II. 246. A woody climber 20 to 30 feet long; young branches thinner than a goose-quill, at first minutely rusty-tomentose, afterwards with glabrescent pale spongy bark. Leaves dark-coloured when dry, the edges recurved, thickly coriaceous, narrowly elliptic, shortly and bluntly acuminate or blunt, the base cuneate; upper surface shining, glabrous except the pubescent

base of the midrib; the lower uniformly pale-pubescent; midrib distinct; main-nerves (18 to 12 pairs) very indistinct on both surfaces; length 2 to 4 in.; breadth 1 to 1.6 in.; petiole .3 or .4 in., pubescent. *Stipules* broadly oblong, blunt, scaly, .2 in. long. *Capitula* on puberulous peduncles .2 to .3 in. long, in fascicles of 3 or 4 at the apices of the branches. *Flowers* .4 in. long, confluent by their calyces into globular capitula .2 in. in diam. *Calyx* very short, cupular. *Corolla* salver-shaped, .35 in. long, the tube narrow, the limb with deflexed oblong blunt lobes .1 in. long, densely hairy on the upper surface. *Infrutescence* when ripe pulpy, elliptic (often transversely so) with one or two elongate very protruding enlarged calyx-tubes.

PERAK: *King's Collector* 4004; *Wray* 2284; *Ridley* 7204, 10258; *Hullett* 5665. SINGAPORE: *Ridley* 3818, 4126. MALACCA: *Griffith* (K.D.) 2947; *Maingay* (K.D.) 874.—DISTRIB. BORNEO.

4. *MORINDA UMBELLATA*, Linn. Sp. Pl. 176. A powerful glabrous climber; young branches thinner than a goose-quill, pale-brown, angled, shining. *Leaves* thinly coriaceous, narrowly oblong or elliptic-lanceolate, the apex shortly acuminate, the base much narrowed; both surfaces pale olivaceous-brown when dry, transversely reticulate; main-nerves 5 or 6 pairs, curved, ascending, faint; length 3.5 to 5 in.; breadth 1 to 1.35; petioles .2 to .3 in.; stipules sheathing, entire, truncate, or slightly toothed, .15 in. long. *Heads* sub-globular, about .25 in. in diam., on slender peduncles varying from .35 to 1 in. in length (lengthening in fruit to nearly 2 in.) from 5 to 8 collected in an ebracteate umbel at the end of a branch. *Calyx* sessile, truncate. *Corolla* almost rotate, longer than the calyx, its tube about 1 in. long, slightly constricted at the mouth, throat densely villous; limb .2 in. across, its lobes oblong, obtuse, glabrous on the outer surface, densely woolly on the inner. Ripe infrutescences about .25 in. in diam. DC. Prod. IV. 449; W. & A. Prod. 420; Wall. Cat. 8431; Kurz For. Flora, Burma, II. 62; Hook fil. Fl. Br. Ind. III. 157. *M. scandens*, Roxb. Fl. Ind. I. 548; DC. Prod. IV. 449. *M. tetrandra*, Jack in Mal. Misc. I. 13; Wall. Cat. 8432; Roxb. Fl. Ind. ed. Carey & Wall. II. 203; DC. l.c. *M. Padavora*, Juss. Gen. 206. *Morinda*, Wall. Cat. 8429.

In all the provinces; common.—DISTRIB. Burma, Southern India and Ceylon, Malay Archipelago, China, Japan, Australia.

VAR. *Scortechinii*, King & Gamble. Young branches, under surfaces of the leaves, and peduncles rusty-pubescent; leaves elliptic-obovate, shortly and abruptly acuminate; pedicels 1.5 to 2 in. long.

PERAK: *Scortechinii* 2015. Collected only once.

VAR. *Ridleyi*, King & Gamble. Young branches and under surfaces

of the leaves softly pubescent; *leaves* oblanceolate or oblong-lanceolate, shortly acuminate: peduncles less than 1 in. long.

SINGAPORE: in Botanic Garden Jungle, *Ridley* 5668, 6470, 6471, 6916.

42. RENNELIA, Korthals.

Characters of *Morinda* but the heads few-flowered and in terminal panicles, the ovules peltate; the seeds thin, orbicular.—DISTRIB. 5 or 6 Malayan species.

NOTE.—In this we include the genus *Tribrachya*, Korthals, which, as described by its author, differs from *Rennellia* only in having the flowers in each head limited to three.

Inflorescence paniculate	...	...	...	1 <i>R. paniculata</i> .
„ spicate	...	...	...	2 <i>R. speciosa</i> .

1. *RENNELIA PANICULATA*, King & Gamble, n. sp. A small glabrous tree or shrub; young branches at first dark-brown, afterwards becoming pale, striate, thickened at the nodes. *Leaves* sub-coriaceous, elliptic, acute or shortly acuminate, the base much narrowed; upper surface dark-brown when dry; the lower paler-brown, finely reticulate; main-nerves 10 to 12 pairs, slightly curved, spreading, prominent like the midrib on the lower surface, indistinct on the upper; length 6 to 9 in.; breadth 2.25 to 3.75 in.; petioles .8 to 1.25 in.; stipules oblong, obtuse, .4 in. long. *Inflorescence* paniculate, erect, terminal; the branches opposite, or sometimes whorled, .6 to .9 in. long, each bearing at its apex 3 or more sessile flowers. *Calyx* a very shallow entire cup. *Corolla* coriaceous; the tube cylindric, .5 in. long; the limb nearly as long as the tube with 5 recurved lobes. *Anthers* included, attached near the throat, versatile, on short filaments. *Style* short; stigmas lanceolate. *Infrutescence* globular, .5 in. in diam., glabrous, with several orbicular calyces protruding on the surface.

PERAK: *Scortechini* 316; *King's Collector* 2164, 2592, 5432. PENANG: *Curtis*.

2. *RENNELIA SPECIOSA*, Hook. fil. Fl. Br. Ind. III. 158. A small glabrous shrub; young branches about as thick as a goose-quill, pale, striate, thickened at the nodes. *Leaves* thinly coriaceous, oblanceolate or elliptic-lanceolate, shortly acuminate, the base much narrowed; upper surface olivaceous-brown, the lower olivaceous, reticulate; main-nerves 7 to 9 pairs, curved, ascending, slightly prominent; length 5 to 9 in.; breadth 1.5 to 3.5 in.; petioles .5 to 1 in.; stipules coriaceous, often 2-lobed, oblong, sub-acute, breaking off about the middle. *Inflorescence* 1 to 2 in. long, terminal, erect, on a short petiole; flowers from 3 to 6 on very short branches. *Calyx* sessile, cupular, truncate. *Corolla* coriaceous, .75 in. long, salver-shaped; limb with 5 short oblong

blunt sub-erect lobes. *Infrutescence* the size of a large pea. *Morinda speciosa*, Wall. Cat. 8436; Kurz For. Fl. Burma, II. 62.

MALACCA: *Griffith* (K.D.) 3046; *Maingay* (K.D.) 918/2. PERAK: *Scortechini* 668; *Ridley* 7197; *Wray* 2897, 4008; *King's Collector* 495, 5967.—DISTRIB. Burma.

VAR. *elongata* King & Gamble: *inflorescence* 2 to 6 in. long; flowers mostly in threes.

WELLESLEY PROVINCE: *Ridley* 7010. PAHANG: *Ridley* 2193, 5834. PERAK: *King's Collector* 3926; *Ridley* 9710; *Scortechini* 106.—DISTRIB. Sumatra.

43. PRISMATOMERIS, Thwaites.

Shrubs with compressed 4-angled branches. *Leaves* sub-coriaceous; stipules 1- or 2-cuspidate. *Flowers* unisexual, usually on slender pedicels, in sub-umbellate axillary and terminal, sometimes pedunculate fascicles. *Ovary-tube* in the male flowers small, turbinate; in the female longer, obovoid, persistent; limb cupular. *Corolla-tube* cylindric, with glabrous throat; lobes of the limb 4 or 5, spreading, valvate in bud. *Stamens* included in the corolla-tube and equal in number with the lobes of the limb; dorsifixed near their bases by short filaments. *Ovary* 2-celled; style filiform, with 2 linear or lanceolate arms; ovules solitary in each cell, attached above the middle of the septum. *Berry* small, 1-celled, 1-2-seeded. *Seed* sub-globose, peltate, deeply concave in the ventral surface; testa membranous; embryo small; cotyledons reniform; radicle inferior.—DISTRIB. 3 or 4 species, in tropical India, Ceylon and Malaya.

Flowers on rather long slender pedicels ...	...	1	<i>P. albidiflora</i> .
Flowers sub-sessile or sessile ...	...	2	<i>P. subsessilis</i> .

1. PRISMATOMERIS ALBIDIFLORA, Thw. in Hook. Kew Journ. VIII. 268, t. VII. f. A. An evergreen shrub or small tree, glabrous; young branches thicker than a crow-quill, pale. *Leaves* narrowly elliptic or elliptic-lanceolate, sometimes oblanceolate, the apex much acuminate, the base much narrowed; both surfaces pale-greenish or yellowish-brown, and rather dull when dry; the lower reticulate; main-nerves 5 to 7 pairs, curved, spreading and interarching about a line from the edge; length 2·5 to 4·5 in.; breadth ·75 to 1·5 in.; petioles ·1 to ·2 in.; stipules small, fugacious. *Flowers* usually in sessile fascicles, rarely in pedunculate umbels; pedicels ·3 to ·75 in. long, ebracteolate, filiform. *Ovary* ·05 to ·1 in. long. *Corolla* white; the tube ·5 to ·75 in. long, narrowly funnel-shaped, the lobes of the limb narrowly oblong, blunt, nearly as long as the tube, spreading. *Fruit* globose or ovoid, smooth, ·25 in. in diam. Thwaites Enum. Pl. Ceyl. 154, 421; Bedd. Ic. Pl. Ind. Or. t. 93; Hook. fil. Fl. Br. Ind. III. 159; Trimen Fl. Ceylon, II. 355.

Coffea tetrandra, Roxb. Fl. Ind. I. 538; Wall. Cat. 6242; DC. Prod. IV. 499; Kurz For. Fl. Burma. II. 28. *Rubiae*, Wall. Cat. 8470.

In all the Provinces: common.—DISTRIB. Burma, Khasia Hills, Malay Archipelago, Ceylon.

Besides the foregoing there is in Herb. Calcutta a single specimen (Ridley 2196) with flowers only in bud and no fruit. This is distinguished by ovato-elliptic leaves with 4 or 5 pairs of slightly curved ascending nerves, and few-flowered lax panicles on filiform axillary peduncles about 1.5 in. long.

2. *PRISMATOMERIS SUBSESSILIS*, King & Gamble. A glabrous shrub: young branches thinner than a goose-quill, pale, polished. *Leaves* narrowly elliptic, the apex and base acuminate; both sides pale-brown when dry, dull, the midrib prominent, the reticulations obsolete; main-nerves 5 to 7 pairs, slender, spreading, interarching .1 in. from the edge; length 2.25 to 4.5 in.; breadth .75 to 1.35 in.; petiole .15 to .4 in.; stipules under .1 in. in length, broad, connate into a ring, each 2-toothed. *Flowers* 2 or 3, on very short pedicels, or sessile, in a terminal fascicle. *Calyx* about .2 in. long, funnel-shaped, the limb wide, about as long as the tube, truncate with minute acute teeth. *Corolla* 1.25 in. long, salver-shaped, the tube narrow; the limb nearly as long as the tube, divided to its base into 5 narrowly lanceolate, deflexed, coriaceous lobes. *Fruit* a broad smooth didymous berry, about .6 in. in diam. and .5 in. long.

PERAK: *Scortechini* 355; *Wray* 289; *King's Collector* 8071: at elevations of 3000 to 4500 feet.

Differs from *P. albidiflora* in its nearly sessile flowers and larger calyx, corolla and fruit.

44. *GYNCHTHODES*, Blume.

Climbing glabrous shrubs with slender terete branches. *Leaves* opposite, coriaceous or sub-coriaceous; the stipules broad, acute, deciduous. *Flowers* small, on short pedicels, unisexual, in axillary fascicles or pedunculate heads; bracts deciduous. *Calyx* with a small short tube, the limb annular, truncate or 5-toothed, persistent. *Corolla* coriaceous with a short tube and woolly throat; the limb with 4 or 5 oblong-lanceolate lobes, valvate in bud, the apices inflexed. *Disk* broad, depressed. *Stamens* equal in number to the corolla lobes, on short filaments, dorsifixed, in the corolla tube, linear-oblong, exserted. *Ovary* 4-celled; style of male flower entire; of female stout, bifid. *Ovules* 1 in each cell, broad-based, attached to the inner angle of the cell. *Drupe* globose, fleshy, with 2 to 4 dorsally compressed pyrenes. *Seeds* compressed, ascending; testa membranous; embryo small, basal, radicle inferior.—DISTRIB. 3 or 4 species, all Malayan.

- Leaves broad and rounded at the apex, sometimes with a short broad blunt point, 2·25 to 4 in. long and 1·25 to 2·25 in. broad; fruit ·5 in. in diam. ... 1. *G. coriacea*.
 Leaves acuminate at the apex, elliptic-lanceolate (often narrowly so) 2·25 to 3·25 in. long and ·5 to 1·1 in. broad; fruit the size of a pea ... 2. *G. sub lanceolata*.
 Leaves shortly and abruptly acuminate, rarely sub-acute, 3·5 to 5 in. long and 1·35 to 2·5 in. broad; fruit globose, ·5 to ·6 in. in diam. ... 3. *G. macrophylla*.

1. *GYNCHTHODES CORIACEA*, Blume Bijdr. 993. Young branches thinner than a goose-quill, nearly black. *Leaves* thinly coriaceous, elliptic, elliptic-rotund or elliptic-obovate, obtuse or shortly bluntly and abruptly apiculate, much narrowed to the base; main-nerves 4 to 6 pairs, spreading, only slightly curved, faint; both surfaces alike, nearly black, slightly shining; length 2·25 to 4 in.; breadth 1·2 to 2·25 in.; petioles ·4 or ·5 in.; *Flowers* ·3 in. long, few, on short axillary peduncles. *Corolla-tube* very narrow, about as long as the limb; lobes of limb linear-oblong, densely hirsute on the upper surface, spreading. *Fruit* globose, pulpy, 4-celled; pyrenes 1-seeded. Miq. Fl. Ind. Bat. II. 313; DC. Prod. IV. 467.

SINGAPORE: (Bot. Garden Jungle), Ridley 6410, 10393, 2871.—
 DISTRIB. Java, Borneo, Timor.

2. *GYNCHTHODES SUBLANCEOLATA*, Miq. Fl. Ind. Bat. Suppl. 548. Branches thinner than a goose-quill, dark-coloured when dry. *Leaves* thinly coriaceous, elliptic lanceolate, often narrowly so, acuminate, the base much narrowed; both surfaces dull and blackish when dry; main-nerves indistinct, 5 or 6 pairs, ascending, little curved; length 2·25 to 3·25 in.; breadth ·5 to 1·1 in.; petioles ·2 to ·4 in.; stipules triangular. *Flowers* few, about ·35 in. long, sub-sessile on very short axillary branches. *Calyx-limb* truncate but with 5 distant minute teeth. *Corolla-tube* short, rather wide, hairy inside; limb with 5 broadly lanceolate sub-acute lobes longer than the tube. *Anthers* slightly exserted. *Stigma* with 2 elongate plano-convex lobes. *Fruit* pisiform, smooth, on a short pedicel. Hook. fil. Fl. Br. Ind. III, 160. *G. coriacea*, var.—, Miq. in. Ann. Mus. Lugd. Bat. IV. 244. *Paederia tetrandra*, Wall. Cat. 6249. ? *Psychotria*, Wall. Cat. 8385. *Rubiacea*? Wall. Cat. 8297.

SINGAPORE: *G. Thomson*; Ridley; King's Collector 319. MALACCA: Maingay (K.D.) 919; Griffith. PENANG: Wallich.—DISTRIB. Borneo, Sumatra.

3. *GYNCHTHODES MACROPHYLLA*, Kurz in Journ. As. Soc. Beng. 1872, Pt. II, 314. Young branches angled, nearly as thick as a goose-quill, the bark pale. *Leaves* coriaceous, elliptic or elliptic-oblong, shortly

and abruptly acuminate or sub-acute, the base cuneate; upper surface very dark-brown and shining when dry, the lower paler and dull; main-nerves 6 or 7 pairs, spreading, slightly prominent on the lower surface scarcely visible on the upper; length 3·5 to 5·5 in.; breadth 1·35 to 2·5 in.; petioles ·3 to ·5 in.; stipules short, broad. *Flowers* ·25 in. long, on thick short axillary pedicels. *Calyx*-tube almost globular; the limb cupular, as long as the tube, truncate. *Fruit* ·5 or ·6 in. in diam., pulpy, globose or broadly depressed-pyriform with 4 pyrenes (one often abortive). Kurz For. Flora Burm. II. 33: Hook. fil. Fl. Br. Ind. III. 160.

MALACCA: *Maingay* (K.D.) 934.

PERAK: *Ridley*; *Wray* 1156; *King's Collector* 5807.—DISTRIB. Andamans, Nicobars.

The Andaman specimens have darker narrower leaves than those from the Malay Peninsula.

45. SPERMACOCE, Linn.

Herbs or small under-shrubs, usually with 4-angled branches. *Leaves* membranous or coriaceous, penni-nerved or longitudinally nerved; the stipules connate into a campanulate tube with a truncate bristly mouth. *Flowers* usually red or bluish, small or minute, solitary and axillary, or in axillary or terminal fascicles, heads or cymes, sometimes densely crowded. *Calyx* obovoid, or ovoid, the mouth with 2 or 4 persistent teeth often with interposed bristles or processes. *Corolla* funnel- or salver-shaped; the mouth with 4 valvate lobes. *Stamens* 4, inserted on the throat or tube of the corolla, filaments short or long. *Anthers* linear or oblong, included or excluded. *Disc* tumid or absent. *Ovary* 2-celled; each cell with a single ovule attached to the middle of the septum, amphitropous. *Style* filiform; stigma capitate or with 2 oblong arms. *Fruit* coriaceous or crustaceous, mericarps dehiscing variously. *Seeds* oblong or ovoid, grooved ventrally, the testa thin, embryo axile, cotyledons thin and broad.—DISTRIB. Species about 150, tropical and sub-tropical.

- | | | |
|---|-----|---------------------------|
| Leaves spatulate, obovate or bluntly oblong, the base | | |
| narrowed, main-nerves 3 pairs, faint, hispid ... | ... | 1. <i>S. hispida</i> . |
| Leaves narrowly elliptic, tapering acutely to each end, | | |
| main-nerves 3 or 4 pairs, very bold and prominent beneath | | 2. <i>S. scaberrima</i> . |
| Leaves narrowly oblong-lanceolate, acute, pale beneath, | | |
| main-nerves sub-obsolete ... | ... | 3. <i>S. stricta</i> . |

1. SPERMACOCE HISPIDA, Linn. Sp. Pl. 102. Herbaceous; diffuse, spreading or sub-erect; stems half as thick as a goose-quill, acutely 4-angled and somewhat grooved when dry, sparsely and minutely

hispid, especially on the angles. *Leaves* sub-coriaceous, obovate, spatulate or oblong, sometimes elliptic, always blunt at the apex and tapering more or less to the base, continuous with the short, wide-cupular, pubescent bristle-bearing persistent stipules; upper surface reticulate (when dry), scaberulous, olivaceous, strigose; the lower pale, with spreading hispid hairs on the nerves; main-nerves about 3 pairs, rather straight, faint, oblique; length .35 to .75 in.; breadth .15 to .4 in. *Cymes* small, axillary, hardly longer than the stipules, 4- to 6-flowered. *Flowers* .4 in long, sessile, with a few small membranous toothed bracteoles between them. *Calyx* small, densely silky, urceolate-campanulate, with 4 long narrow acute spreading lobes. *Corolla* three times as long as the calyx, salver-shaped, glabrous, the 4 broadly ovate teeth silky at their apices. *Stamens* about as long as the corolla-lobes; anthers oblong, filaments and style equal. *Stigma* large, transversely oblong. *Capsule* ovoid or sub-globular, sparsely hispid, crowned by the narrow, reflexed calyx-lobes, 2-celled with a single brown seed in each cell. DC. Prod. IV. 555; Roxb. Fl. Ind. I. 373; Wall. Cat. 825; W. & A. Prod. Fl. Penins. Ind. 438; Hook. fil. Fl. Br. Ind. III. 201; Trimen Fl. Ceyl. II. 371. *S. articularis*, Linn. fil. Suppl. 119; Roxb. Fl. Ind. l.c.; Wall. Cat. 827; W. & A. Prod. l.c.; Kurz Journ. As. Soc. Beng. 1877 II. 137. *S. scabra*, Willd. Sp. Pl. I. 572; Roxb. l.c. 371; Wall. Cat. 824. *S. hirta*, Rottb. in Nov. Ac. Berol. 1803, 95. *S. longicaulis*, Wall. Cat. 826. *S. avana*, Wall. Cat. 828. *S. ramossissima*, Wall. Cat. 829. *S. tubularis* Br. in Wall. Cat. 836.

In all the provinces: common.—DISTRIB. British India, Ceylon, S. China, Malaya Archipelago.

2. *SPERMACOE SCABERRIMA*, Blume Bijdr. 946. Herbaceous, woody near the base; stems procumbent, much branched, thinner than a goose-quill, 4-angled, the angles with stiff reflexed small white hairs, otherwise glabrous and shining, dark-brown. *Leaves* olivaceous, coriaceous, narrowly elliptic, tapering acutely to each end, sessile, upper surface scaberulous, with a very few short white hairs; the lower paler, pilose on the midrib and nerves; main-nerves 3 or rarely 4 pairs, ascending obliquely, little curved, depressed on the upper surface and very prominent in the lower; length .5 to 1 in.; breadth .2 to .4 in. *Stipules* cupular, the mouth with 3 to 7 erect stiff bristles, glabrous. *Cymes* small, axillary, sessile, 4- to 8-flowered, condensed, .15 to .2 in. in diam. *Flowers* about .15 in. long, sessile or on very short pedicels, with short filiform bracteoles between them. *Calyx* oblong, constricted below the mouth, glabrous, the lobes lanceolate, slightly ciliate on the edges, spreading. *Corolla* not much exceeding the calyx, funnel-shaped, glabrous, except for a few ciliae on the edges near the

base of the narrowly-lanceolate spreading lobes. *Stamens* exerted from the throat of the corolla but shorter than its lobes. *Anthers* oblong, the filaments rather long. *Style* about as long as the filaments; stigma large, thick, transversely oblong. *Capsule* slightly more than .1 in. long, oblong, crowned by the large spreading calyx-lobes, smooth, membranous, dehiscent, each cell containing a single oblong blunt black seed. DC. Prod. IV. 555; Miq. Fl. Ind. Bat. II. 331; Hook. fil. Fl. Br. Ind. III. 201. *S. longicaulis*, Br. in Wall. Cat. 826.

MALACCA: Griffith. SINGAPORE: Ridley 5897, 8954. PERAK: *Scortechini* 12, 64, 78, 602.—DISTRIB. Malay Archipelago.

3. *SPERMACOCE STRICTA*, Linn. fil. Suppl. 120. Herbaceous, erect, little-branched, pale-olivaceous when dry; branches as thick as a crow-quill, 4-angled and with 2 broad deep grooves, minutely hispid or sub-glabrous. *Leaves* sessile, coriaceous, oblong-lanceolate, acute, the base narrowed to the stipule; upper surface shining, glabrous or minutely hispid; the lower paler, dull, the midrib prominent and sometimes minutely hispid, nerves obsolete on both surfaces; length .75 to 1.25 in. *Stipules* conjoined to form a deep campanulate cup, the mouth acuminate or truncate but always with 6 to 8 long spreading bristles. *Flowers* .3 in. long, in clusters of 2 or 3, axillary, sessile subtended by a few pectinate bracteolates. *Calyx* campanulate, hispid outside, the mouth with 4 deep, lanceolate, acuminate, spreading lobes. *Corolla* much exerted beyond the calyx, tubular, with 4 deep, long, sub-erect lobes inflexed and sometimes hispid at the apex. *Stamens* slightly exerted; anthers sagittate, on long filaments. *Stigma* large, 2-lobed, as long as the stamens; style long filiform. *Capsule* oblong-obovoid, smooth, membranous, 2-celled, dehiscent, with a single black oblong seed in each cell. Roxb. Hort. Beng. 83; Fl. Ind. I. 370; DC. Prod. IV. 554; Kurz in Journ. As. Soc. Beng. 1877 II. 137. *S. lasiocarpa* Br. in Wall. Cat. 832. *S. pusilla*, Wall. in Roxb. Fl. Ind. ed. Carey & Wall. I. 379; Cat. 823; Don. Prod. 134. *S. filina*, Gardneri and *angustifolia*, Wall. Cat. 830, 834, 835. *S. triandra*, Ham. in Don. Prodr. 134. *Bigelovia stricta*, Blume Bijdr. 945. *B. lasiocarpa*. Roxburghiana & Kleinii, W. & A. Prod. 437. *B. myriantha*, Miq. Fl. Ind. Bat. II. 334. *Borreria pusilla*, DC., Prod. l.c. 543.

PENANG: Curtis 1936. MALACCA: Goodenough 1490. PAHANG: Ridley 1624.—DISTRIB. British India.

46. *PAEDERIA*, Linn.

Twining, slender, foetid shrubs, glabrous or pubescent; the branches thin. *Leaves* opposite, rarely in whorls of three, membranous

petiolate, stipules broad, acuminate, deciduous. *Flowers* in axillary and terminal 2-3-chotomously branched cymose panicles, with or without bracteoles. *Calyx-tube* campanulate or turbinate; the limb 4 or 5 toothed, persistent. *Corolla* funnel-shaped, its throat glabrous or villos; 4 or 5 lobes of the limb with inflexed crenulate margins, their apices sometimes 3-lobed, spreading. *Stamens* 4 or 5, linear-oblong, inserted in the tube of the corolla by very short filaments. *Ovary* 2-celled; stigmas 2, slender, twisted. *Ovules* one in each cell, basal, erect. *Fruit* compressed or globose, with thin shining fragile epicarp, separating early from the 2 pyrenes; pyrenes orbicular or ovoid, dorsally compressed, with or without wings, each containing a single compressed seed with membranous testa adherent to the pyrene; cotyledons large, thin, cordate; radicle small, inferior.—*DISTRIB.* Species 10 to 12 mostly in tropical Asia, one in Brazil.

Fruit compressed, orbicular; pyrenes flat, winged, with radiating ridges on the dorsal surface:—

Leaves and the branches of the panicles always opposite 1. *P. foetida*.

Leaves and the branches of the panicles often in verticels of three 2. *P. verticellata*.

Fruit globular; pyrenes cupped, with neither marginal wings or dorsal ridges 3. *P. tomentosa*.

1. *PAEDERIA FOETIDA*, Linn. Mant. I. 52. Glabrous or puberulous; branches thinner than a goose-quill, dark-coloured and compressed when dry. *Leaves* ovate to lanceolate, the apex acute or apiculate, the base usually rounded or slightly cordate but sometimes cuneate; both surfaces cinereous or olivaceous-brown when dry, and finely reticulate, glabrous except for the occasional pubescence on the leaf nerves beneath and the tufts in their axils; main-nerves 4 or 5 pairs, oblique, faint; length 2 to 3·5 in.; breadth 1 to 1·5 in.; petioles ·5 to 1·5 in.; stipules broadly ovate-lanceolate, acuminate, often bifid, under ·1 in. in length. *Flowers* pink, ·35 in. long, shortly pedicellate, in lax spreading trichotomous (often scorpioid) cymes arranged in divergent axillary and terminal panicles from 3 to 15 in. long and usually bearing leaves like those of the stem but smaller; bracteoles minute, linear. *Calyx* less than ·1 in. long, campanulate, its mouth acutely 4- to 5-toothed. *Corolla* funnel-shaped, three times as long as the calyx, usually pubescent; the lobes of the limb crenulate, short, spreading only slightly. *Fruit* ·4 to ·5 in. across, orbicular; epicarp with 5 curved vertical veins in each side, thin, shining; pyrenes orbicular, with pale marginal wings, the centre with many bold radiating ridges on the dorsal surface, nearly smooth on the ventral. Wall. Cat. 6247, excl. E.; Roxb. Fl. Ind. I. 683; id. ed.

Wall. & Carey II. 517; W. & A. Prod. Fl. Pen. Ind. 424; Blume Bijdr. 968; DC. Prod. IV. 471; Griff. Notul. IV. 267; Ic. Pl. Asiat., t. 479, f. 3; Miq. Fl. Ind. Bat. II. 258; Miq. in Ann. Mus. Lugd. Bat. IV. 254; Hook. fil. Fl. Br. Ind. III. 195.

PERAK: *King's Collector* 1125, 4916, 7560; *Scortechini* 263. PAHANG: *Ridley* 1256. PENANG: *Curtis* 24. MALACCA: *Griffith*.—DISTRIB. British India, Malay Archipelago, Andaman Islands.

2. *PAEDERIA VERTICELLATA*, Blume Bijdr. 968. Glabrous except the lower surfaces of the leaves; branches thinner than a goose-quill, dark and slightly and bluntly 4-angled when dry. *Leaves* coriaceous, usually opposite but sometimes in whorls of three, lanceolate, ovate-lanceolate or elliptic, shortly acuminate, the base cuneate; both surfaces brown when dry, dull, the upper always glabrous, the lower often pubescent, the reticulations on the lower side rather distinct and transverse; main-nerves 6 or 7 pairs, curving, oblique, rather prominent on the lower surface; length 2.5 to 4 in.; breadth 1 to 1.75 in.; petioles 1 to 1.75 in.; stipules broadly triangular, short, very deciduous. *Flowers* 6 in long, funnel-shaped, shortly pedicellate in lax pedunculate branching cymes arranged in pairs or whorls of three in long narrow panicles, bracteoles minute. *Panicles* from 3 to 18 in. long, often bearing petiolate narrowly oblong leaf-like bracts .5 in. long; branches from .75 to 3 in. long, diverging, opposite or in whorls of three. *Calyx* less than .1 in. long, glabrous or puberulous, narrowly funnel-shaped, the mouth dilated and with 4 small triangular teeth or sub-truncate. *Corolla* tubular, constricted at the base, .6 in. long; the teeth less than .1 in. long, acute, erect. *Anthers* linear-oblong, apiculate, included in the corolla; their filaments nearly as long as themselves, dorsi-fixed. *Fruit* much compressed, orbicular, .4 to .5 in. across, with 5 curved vertical veins on each side; pyrenes as in *P. foetida*. DC. Prod. IV. 471; Miq. Fl. Ind. Bat. II. 259; Hook. fil. Fl. Br. Ind. III. 195; Ann. Mus. Lugd. Bat. IV. 255.

SELANGOR: *Ridley* 7416. MALACCA: *Maingay* (K.D.) 885. PERAK: *Scortechini* 446, 1573; *Wray* 3042; *King's Collector* 3177, 3736, 4457, 4780, 5316, 5410, 10613; *Curtis* 3182, 3340. SINGAPORE: *Ridley* 2835, 3647, 6469.—DISTRIB. Borneo.

3. *PAEDERIA TOMENTOSA*, Blume Bijdr. var. *GLABRA*, Kurz. Glabrous or sparsely pubescent; branches slightly thicker than a crow-quill, compressed and brown when dry. *Leaves* membranous, ovate to lanceolate; apex acute, base rounded or cuneate; both surfaces brown when dry, the lower paler and minutely reticulate, pubescent in the nerve axils; length 2.25 to .4 in.; breadth .85 to 1.5 in.; petioles .25 to 1 in.; stipules not connate, triangular, acuminate, less than .1 in. long. *Panicles* as

in *P. foetida* but shorter and less branched; the branches long (often 2·5 in.), diverging, markedly scorpioid. *Flowers* ½ in. long, secund, sessile or pedicellate on the same branch. *Calyx* ½ in. long, narrowly campanulate, with 5 sharp teeth, glabrous. *Corolla* ½ in. long, cylindric, the mouth with 5 short erect acute teeth, pubescent outside. *Fruit* 2 to 3 in. in diam., globular, shining, without veins, crowned by the small calyx; pericarp brittle, pale-brown when dry. *Pyrenes* cupular, without wings or ridges. DC. Prod. IV. 471; Miq. Fl. Ind. Bat. II. 258; Miq. in Ann. Mus. Lugd. Bat. II. 254; Hook. fil. Fl. Br. Ind. III. 197. *P. barbulate* Miq. in Ann. Mus. Lugd. Bat. IV. 255.

MALACCA: *Maingay* (K.D.) 886. PERAK; *Scortechini* 1376; *King's Collector* 6048.—DISTRIB. Malayan Archipelago.

The typical form of this has pubescence on the stems, under surfaces of the leaves and on the panicles. It is the form found in Burma and Assam. In our region only this variety *glabra* has as yet been collected. Except in the shape of its fruit and seeds this species differs little from *P. foetida*, Linn.

47. SAPROSMA, Blume.

Shrubs, foetid when bruised, usually glabrous, often with subulate bristles at the apices of the branches and the bases of the peduncles. *Leaves* membranous, sometimes in whorls of 3 or 4; stipules usually connate into a 1- to 3-pointed sheath. *Flowers* small, white, axillary or terminal, solitary or in fascicles of about 3, sessile or pedicelled, or in pedunculate cymes; the bracteoles minute, often connate. *Calyx-tube* funnel-shaped; the limb dilated, 4- to 6-lobed or toothed; persistent. *Corolla* funnel-shaped or campanulate, the throat villous; the limb with 4 or 5 broad blunt lobes valvate in bud and with inflexed margins. *Stamens* 4, inserted on the throat, sessile or on short filaments; anthers more or less narrowly oblong. *Ovary* 2-celled; style filiform, with 2 short branches; ovules 1 in each cell, erect, basal. *Fruit* small, oblong or globose, containing 2 or (by abortion) 1 pyrene. *Seeds* elliptic and solitary, or two and plano-convex the plane surface not grooved; cotyledons small and leafy; radicle small, inferior.—DISTRIB. About 10 species, tropical Asiatic.

Flowers sessile in dense glomeruli 1. *S. glomerulatum*.

Flowers pedicelled, in cymes:—

Glabrous:—

Cymes about 1 in. long, laxly 3-flowered 2. *S. Scortechinii*.

Cymes from 1·5 to 3·5 in. long, more than 3-flowered,

the branches lax, spreading 3. *S. ternatum*.

More or less pubescent... .. 4. *S. Ridleyi*.

1. *SAPROSMA GLOMERULATUM*, King & Gamble, n. sp. A shrub, very foetid when bruised; young branches thicker than a crow-quill,

compressed, brown when dry. *Leaves* thinly coriaceous, elliptic or ovate-elliptic, shortly and sharply acuminate, the base more or less cuneate, both surfaces brown when dry; the lower paler, dull, and with sparse transverse reticulations; main-nerves 6 to 9 pairs, pale and prominent on the lower surface like the midrib, depressed on the upper; length 3.5 to 7 in.; breadth 1.75 to 3 in.; petioles .25 to .4 in.; stipules cartilaginous, united into a short more or less persistent ring with some short bristly processes inside it. *Flowers* crowded, to the number of 4 or 5, in a multibracteate solitary glomerulus borne at the apex of a short branch between two leaves; the branch bearing in its lower third a pair of lanceolate bracts about .5 in. long. *Female* glomerulus quite sessile, about .3 in. long and .4 in. broad; the male glomerulus somewhat larger than the female, borne on a short compressed peduncle .4 to .75 in. long and enveloped for the lower two-thirds of its length in a loose sheath formed of two acuminate partly conjoined bracts. The outer bracteoles of each glomerulus longer and thicker than the inner, broad, very concave, and forming a persistent involucre; the middle bracteoles broadly ovate-rotund with terminal caudate appendages; the inner ones narrower and embracing the flowers by pairs, appendiculate. *Flowers* sessile, about .25 in. long. *Calyx* .1 in. long, coriaceous, campanulate, the mouth truncate and with 4 or 5 minute distant acute teeth. *Corolla* salver-shaped, about .2 in. long; the tube short and wide; the limb longer than the tube, with 4 broad blunt spreading lobes; anthers 4 to 6, linear-oblong. *Fruit* sessile, sub-globular, smooth, crowned by the small annular calyx, .3 to .35 in. in diam.; pericarp thick; seed solitary, sub-globular, hard.

PERAK: *Scortechini*; *Ridley* 9835; *King's Collector* 783, 6031, 8166. SINGAPORE: *Ridley* 10931. JOHORE: *Ridley* 4213.

The fruit when ripe is said to be blue, and the flowers variously pale-green or white.

VAR. *angustifolia*, King & Gamble: leaves rather more coriaceous than in the typical form, ovate-lanceolate, acuminate, 3 to 4 in. long and 1.25 to 1.4 in. broad.

MALACCA: *Goodenough* 1856. NEGRI SEMBILAN: *Ridley* 1856.

Flowers are absent in both the specimens cited here. When these are obtained, they may afford characters to separate this as a good species.

2. *SAPROSMA SCORTECHINII*, King & Gamble, n. sp. A shrub, glabrous except the midrib and nerves of the leaves on the lower surface; young branches thicker than a-crow-quill, with pale-brown spongy bark. *Leaves* thinly coriaceous, elliptic, shortly and bluntly acuminate, the base cuneate; both surfaces brown when dry; the upper glabrous; the

lower puberulous on the midrib, otherwise glabrous, laxly reticulate; midrib bold on both surfaces; main-nerves 6 or 7 pairs, oblique, bold on the lower surface, faint on the upper; length 3·5 to 5·5 in.; breadth 1·5 to 2·5 in.; petiole ·2 to ·25 in. *Stipules* very short, connate into a sheath; mouth with short bristles. *Cymes* one to three at the apices of the branches, about 1 in. long (longer in fruit), laxly 3-flowered, the peduncle angled, puberulous, with small lanceolate bracteoles in whorls. *Flowers* ·5 in. long; their pedicels about the same. *Calyx* funnel-shaped; the mouth with 4 deep linear-lanceolate spreading lobes. *Corolla* twice as long as the calyx, tubular, expanding at the mouth; lobes 4, oblong, blunt; throat with a ring of hairs. *Stamens* 4, included. *Anthers* curved, oblong; their filaments attached to the tube. *Disk* conical. *Ovary* 2-celled, 2-ovuled. *Fruit* ellipsoid, smooth, ·65 in. long; the remains of the calyx ·2 in. long, blue when ripe. *Seed* solitary.

PERAK: *Scortechini* 511, 670; *Kings Collector* 4138, 5020.

3. *SAPROSMA TERNATUM*, Hook. fil. in Bth. & Hook. fil. Gen. Plant. II. 131; Fl. Br. Ind. III. 193. A glabrous shrub; young branches rather thinner than a goose-quill, pale when dry, compressed. *Leaves* often in whorls of three, thickly membranous, elliptic or elliptic-lanceolate, rarely oblanceolate-elliptic, shortly and rather abruptly acuminate, the base cuneate; both surfaces pale-brown when dry, the upper shining; the lower dull and paler; main-nerves 7 to 9 pairs, oblique, little curved, pale and prominent on the lower surface, the reticulations transverse and rather distinct on the lower surface only; length 4 to 8 in.; breadth 1·5 to 3·25 in.; petioles ·4 to ·6 in. long, with many short unequal bristles at their bases and inside the connate setosely-toothed stipules. *Cymes* solitary or fascicled, from 1·5 to 3·5 in. long, (longer in fruit) axillary, pedunculate, or branching from the base; the branches lax, spreading, sparsely flowered; the bracteoles few, linear. *Flowers* ·4 in. long, on pedicels varying from ·2 to ·6 in. long. *Calyx* ·1 in. long, shortly campanulate, the mouth wide and with 4 broad blunt teeth. *Corolla* ·3 in. long, salver-shaped, puberulous; the tube wide; the limb ·35 in. across with 4 or 5 broad reflexed lobes. *Fruit* ovoid or subglobular, crowned by the rather large calyx-teeth, ·35 in. in diam.; 1-seeded; seeds ellipsoid. Kurz. For. Fl. Burma II. 29. *Paederia ternata*, Wall. Cat. 6248 Roxb. Fl. Ind., ed. Carey & Wall., II. 520; DC. Prod. IV. 471. *Mephitidea* sp., Griff. Notul. IV. 267; Ic. Pl. Asiat. t. 476.

PERAK: *Scortechini* 1163; *Wray* 2262, 2907, 2929, 3943; *King's Collector* 1975, 2764, 3052, 4006, 4069, 6760, 8491. PAHANG: *Ridley* 2225. SELANGOR: *Ridley* 8236.—DISTRIB. Andaman Islands, Burma, Khasia Hills, Sumatra, Java.

4. *SAPROSMA RIDLEYI*, King & Gamble. A shrub? Young branches

compressed, thicker than a crow-quill, pale, glabrous below, pubescent or tomentose towards the apices. *Leaves* membranous, oblanceolate to elliptic, shortly and rather bluntly acuminate, the base much narrowed; both surfaces pale-brown when dry and minutely pitted; the upper glabrous and with the midrib channelled; the lower sparsely pubescent, the midrib densely so and prominent; main-nerves 7 to 10 pairs, spreading but curving upwards at their apices, thin but prominent below; length 3 to 3.75 in.; breadth 1 to 1.5 in.; petiole .1 to .15 in. *Stipules* connate, pale, coriaceous, forming a narrow cup pubescent outside at first, but ultimately glabrous, from less than .1 to .15 in. deep, irregularly toothed, persistent. *Cymes* axillary and terminal, less than half as long as the leaves, trichotomous, the branches 3- or more-flowered, often with 2 elliptic acute involucre bracts at the base. *Flowers* .25 in. long, their pedicels .1 in. *Calyx* salver-shaped, .15 in. long; the tube narrow, tomentose externally; the limb with 5 deep oblong blunt spreading or deflexed lobes; disk large. *Ovary* 2-celled, 2-seeded. *Corolla* and *Fruit* unknown.

SINGAPORE: Ridley 6474, only one specimen seen.

48. HYDNOPHYTUM, Jack.

Glabrous epiphytic shrubs, with a dilated tuberous fleshy stem, simple or lobed and perforated by ants. *Leaves* coriaceous, elliptic, obtuse. *Flowers* small, sessile, axillary, solitary or in fascicles, white. *Calyx-tube* ovoid-cylindric, the limb truncate. *Corolla* salver or funnel-shaped; tube short, hairy inside; limb 4-lobed, valvate. *Anthers* 4, oblong, subsessile on the corolla-throat. *Ovary* 2-celled; stigma 2-lobed; ovules one in each cell, basal, erect. *Fruit* containing two coriaceous pyrenes surrounded by pulp. *Seeds* oblong, plano-convex, testa thin with dark lines, embryo in the centre of the fleshy albumen.—
DISTRIB. 3 or 4 species in Malaya, N. Australia, Fiji.

HYDNOPHYTUM FORMICARIUM, Jack in Trans. Linn. Soc. XIV. 124. All parts glabrous. *Stem* tuber-like, smooth, several inches to a foot in diameter, bearing roots from its base and from its apex a few short branches as thick as a goose-quill and compressed near the nodes, pale and striate when dry. *Leaves* elliptic or elliptic-oblong, sometimes obtuse, the apex obtuse, the base cuneate; both surfaces pale-brown when dry; the midrib distinct on both; the 6 or 7 pairs of ascending little-curved main-nerves slender on both surfaces and the reticulations obsolete; length 2.5 to 3.5 in.; breadth 1 to 2.5, petioles .1 to .2 in. *Flowers* few, .25 in. long, sessile in axillary fascicles. *Calyx* widely campanulate with rounded base and truncate apex. *Corolla-tube* nearly twice as long as the calyx, wide, with 4 tufts of hair in the throat; limb about

half as long as the tube, with 4 broad oblong acute lobes, thickened at the apex. *Anthers* elliptic, on very short filaments inserted at the base of the tube. *Fruit* broadly ovoid, crowned by the cup-like remains of the calyx, glossy orange-red when ripe, about .2 in. long. Blume Bijdr. 956: DC. Prod. IV. 451; Kurz For. Flora Burma, II. 8; Hook. fil. Fl. Br. Ind. III. 194; Beccari Malesia II. t. XLVII. f. 1 to 11; XLVIII. f. 1 to 8. *H. montanum*, Blume and DC. ll. cc. *Lasiostoma formicarium*, Spreng. Syst. I. 423; Wall. Cat. 9055.

MALACCA: *Griffith* (K.D.) 2975; *Maingay* (K.D.) 864. PENANG: *Curtis* 2164. PERAK: *Scortechini* 934; *Wray* 2673; *King's Collector* 4994. JOHORE: *Ridley* 335, 2840. SINGAPORE: *Ridley* 1617.—DISTRIB. Cochin-China, Sumatra, Borneo.

49. GEOPHILA, Don.

Small, slender, usually perennial, creeping herbs, glabrous or pubescent, the stems rooting. *Leaves* orbicular, reniform, ovate, often cordate, on long petioles. *Stipules* ovate, entire. *Flowers* small, solitary and subsessile or in pedunculate, bracteate, axillary or terminal umbels. *Calyx-tube* obovoid; its segments from 5 to 7, slender, persistent, spreading or reflexed. *Corolla* rather long, funnel-shaped, the throat hairy; lobes 4 to 7, valvate in bud. *Stamens* equal in number to the lobes. *Anthers* dorsifixed, linear; filaments thin. *Ovary* 2-celled; style slender, with 2 long or short branches: ovules erect, one in each cell. *Fruit* fleshy, with two plano-convex pyrenes. *Seeds* plano-convex, without any ventral groove; embryo minute, basal; radicle inferior.—DISTRIB. about 16 species, all tropical.

Leaves with broad, usually cordate bases:—

Flowers solitary, axillary:—

- | | | | | |
|--|-----|-----|-----|-----------------------------|
| Leaves glabrous, .5 in. long | ... | ... | ... | 1. <i>G. humifusa</i> . |
| Leaves hairy, .6 to 1 in. long | ... | ... | ... | 2. <i>G. pilosa</i> . |
| Peduncles with 1 to 3 flowers; leaves reniform to ovate-cordate, glabrous, .5 to 1.75 in. in length and breadth | | | 3. | <i>G. reniformis</i> . |
| Peduncles with 6 to 9 flowers in an umbel; leaves glabrous, 1.75 to 3 in. long | ... | ... | ... | 4. <i>G. melanocarpa</i> . |
| Leaves with narrow bases never cordate, sparsely and minutely adpressed hairy, 1 to 1.5 in. long, peduncles few-flowered | ... | ... | ... | 5. <i>G. Scortechinii</i> . |

1. *GEOPHILA HUMIFUSA*, King & Gamble, n. sp. Stems very slender, glabrous, rooting at the nodes, often several feet long. *Leaves* thickly membranous, glabrous, in distant pairs, ovate-cordate, acute, the edges undulate when dry, .4 in. long and .25 in. broad, the petiole as long as the blade, main-nerves about 3 pairs, one pair basal; stipules

broad-ovate, '1 in. long. *Flowers* solitary, axillary, sub-sessile. *Fruit* as large as a currant, fleshy, bright-red.

PERAK: *Scortechini* 412.—DISTRIB. JAVA: on the Gedeh Volcano, *King*. SUMATRA: *Beccari* 44; *Forbes* 2059.

2. *GEOPHILA PILOSA*, H. H. W. Pearson in Hook. Ic. Plant., t. 2691. More slender than *G. reniformis*, the stem, leaves, peduncles and calyx with much stiff pubescence. *Leaves* broadly ovate-cordate, with sub-acute apices and slightly waved edges, both surfaces and petioles with pale stout curved hairs, the upper olivaceous, the lower paler green; main-nerves 3 pairs, much curved, spreading and ascending, rather distinct (when dry) on the lower; length '6 to 1 in.; breadth '35 to '65 in.; petioles '5 to 2 in. *Stipules* ovate, '1 in. long. *Peduncles* terminal, '5 to '8 in. long, tomentose. *Flowers* solitary, or 2 to 3 in an umbel with 2 lanceolate hairy bracts at its base. *Flowers* '25 in. long, sub-sessile. *Calyx*-tube cylindric, densely hairy, its lobes linear. *Corolla* tubular, with 5 deep ovate-acute teeth, pilose externally. *Fruit* sub-globular, black, crowned by the sub-coherent calyx-lobes, '3 in. in diam.

SINGAPORE: *Ridley* 9516.—DISTRIB. BORNEO: *Barber* 249.

3. *GEOPHILA RENIFORMIS*, Don. Prodr. 136. *Stem* as thick as a crow-quill, 6 to 18 in. long, glabrous, the branches short. *Leaves* broadly ovate-cordate to reniform, the apex sub-acute or obtuse; upper surface brown when dry, the lower paler, both glabrous, the main-nerves mostly radiating from the base of the midrib, 3 or 4 pairs, not prominent; length '5 to 1'5 in.; breadth '5 to 1'75 in.; petioles '35 to 2 in., often puberulous. *Stipules* small, semilunar, the apex reflexed. *Peduncles* slender, '5 to 2 in. long, slender, 1- to 3-flowered. *Flowers* '6 in. long, without pedicels, with lanceolate bracts at their bases. *Calyx*-lobes deep, narrowly lanceolate. *Corolla* much exceeding the calyx, its lobes lanceolate, glabrous or pubescent externally. *Berry* red, crowned by the calyx-lobes, sub-globular, '35 in. in diam. DC. Prod. IV. 537; W. & A. Prod., 436; Wight Icon. t. 54; Dalz. & Gibs. Fl. Bomb. 111; Miq. Fl. Ind. Bat. II. 311; Hook. fil. Fl. Br. Ind. III. 178. *G. diversifolia*, DC. l.c., Wall. Cat. 8325. *Psychotria herbacea*, Linn. Sp. Pl. 245; Roxb. Fl. Ind. I. 533. *Cephaelis herbacea*, Kurz in Journ. As. Soc. Beng. 1877, II. 140. *C. diversifolia*, Bl. Bijdr. 1004.

MALACCA: *Maingay* (K.D.) 927; *Goodenough* 1526. PERAK: *Scortechini* 130, 2183; *Wray* 3368; *King's Collector* 265, 905. PENANG: *Curtis* 1930; *Deschamps*. POONGAH: *Curtis* 3235. KEDAH: *Curtis*.—DISTRIB. Malayan Archipelago, Ceylon, British India, Andaman Islands, Polynesia, S. China, tropical America and Africa.

4. *GEOPHILA MELANOCARPA*, Ridley in Trans. Linn. Soc. (2) III. 313, t. 62. *Stems* 6 to 18 in. long, compressed, as thick as or thicker

than a crow-quill, glabrous. *Leaves* thickly membranous, oblong-ovate; slightly cordate at the base, the apex sub-acute, the edges slightly waved; both surfaces glabrous, pale olivaceous-brown, the reticulations, midrib, and 3 to 5 pairs of ascending main-nerves prominent; length 1·75 to 3 in.; breadth ·75 to 1·5 in.; petiole 1 to 2·5 in.; puberulous. *Stipules* lanceolate, 1 in. long. *Peduncle* terminal, slender, ·75 to 3 in. long, compressed, bearing an umbel of 6 to 9 flowers with an involucre of linear blunt bracts at its base. *Flowers* ·6 in. long, on glabrous pedicels much shorter than themselves. *Calyx-tube* ·25 in. long; its lobes longer, oblong, obtuse. *Corolla-tube* about ·25 in. long, its lobes shorter, oblong, blunt. *Stamens* included. *Fruit* fleshy, broadly ovoid, black when ripe, shining, ·35 in. in diam. and (including the persistent calyx-teeth) slightly longer; pyrenes ·25 in. long, plano-concave with a ridge on each side.

PERAK: *Scortechini* 129; *King's Collector* 10134. MALACCA: *Ridley* 1608. SELANGOR: *Ridley* 8569.

5. *GEOPHILA SCORTECHINII*, King, n. sp. *Stem* prostrate, rather thicker than a crow-quill, obscurely 4-angled, 1 or 2 feet long; the branches short, erect. *Leaves* sub-fleshy, ovate or ovate-elliptic, base narrowed or rounded; both surfaces with sparse very minute white adpressed hairs; upper (when dry) pale-brown, the nerves indistinct; lower yellowish, the midrib and the 3 or 4 pairs of much curved ascending nerves slightly prominent; length 1 to 1·5 in.; breadth ·6 to ·9 in.; petioles ·35 to ·75 in. *Peduncles* terminal, about as long as the leaves, slender, compressed, bracteate, dichotomous near the apex and bearing two small linear bracts at each bifurcation. *Flowers* few, on short bracteolate pedicels, ·6 in. long (to the end of the long style). *Calyx* with a long narrow tube, and 5 long linear acuminate lobes puberulous outside. *Style* very long, filiform.

PERAK: *Scortechini*.

CEPHAELIS, Swartz.

Undershrubs or perennial herbs, usually erect. *Leaves* oblanceolate, obovate or oblong; stipules usually solitary, connate at the base (in the Malayan species). *Flowers* in involucrate heads. *Calyx* with a funnel-shaped tube and (in the Malayan species) an entire persistent limb. *Corolla* funnel-shaped or salver-shaped, its throat naked or hairy; lobes of the limb 4 or 5, erect or spreading, valvate. *Stamens* 4 or 5, inserted in the mouth of the corolla-tube, usually shortly exserted. *Anthers* oblong or linear, dorsifixed. *Ovary* 2-celled (rarely 3- or 4-celled). *Style* long or short. *Ovules* 1 in each cell, basal, erect. *Fruit* dry or fleshy, of two plano-convex pyrenes. *Seeds* plano-convex, their

testa membranous, albumen horny. *Embryo* small, basal, the cotyledons leafy.—**DISTRIB.** Species about 70, all tropical.

Stipules coriaceous, their bases coriaceous and leaving bold scars on the stem:—

Capitula sessile, 1 to 3 in. across; leaves 3 to 5 in. broad;

stipules broadly ovate, 8 in. long ... 1. *C. Griffithii*.

Capitula pedunculate, .75 to 1 in. across; leaves .5 to 3.5

in. broad; stipules coriaceous, broadly ovate with dis-

coloured edges, .1 to .5 in. long ... 2. *C. cuneata*.

Stipules not coriaceous, leaving no scars on the stem ... 3. *C. Ridleyi*.

1. *CEPHAELIS GRIFFITHII*, Hook. fil. Fl. Br. Ind. III. 178. Young branches thicker than a swan-quill, lenticellate. *Leaves* membranous, oblong-oblancoate, shortly and rather abruptly acuminate, gradually narrowed from above the middle into the long slightly winged petiole, both surfaces glabrous, brown when dry, the lower the paler; main-nerves 12 to 20 pairs, curving upwards, prominent like the midrib on the lower surface, rather faint on the upper surface when dry; length 10 to 16 in.; breadth 3 to 5 in.; petioles 2.5 to 3 in. *Stipules* coriaceous, sub-orbicular, their apices sub-acute, .8 in. long, the margins entire, thin, and discoloured. *Capitulum* sub-globular, from 1 to 2 in. in diam., sessile or shortly stalked, bearing numerous orbicular bracts like the stipules, but smaller. *Flowers* .75 in. long, on short pedicels. *Calyx* .15 in. long, the tube narrow-cylindric; the mouth abruptly campanulate, entire, truncate. *Corolla* funnel-shaped, .65 in. long, mouth with 5 ovate-acute reflexed lobes. *Fruit* .35 in. long, compressed, slightly grooved along the edges, with a broad dorsal rib on each side, crowned by the calyx-limb. *Seed* thin.

MALACCA: *Griffith* (K.D.) 3032; *Maingay* (K.D.) 928. **NEGRE SEMBILAN:** *Ridley* 10109. **PERAK:** *King's Collector* 746, 2534, 6251, 6399, 10782; *Wray* 1197, 1338, 3027; *Ridley* 9755; *Scortechini*.—**DISTRIB.** **SUMATRA:** *Forbes*, 2511.

Differs from *C. cuneata* in the longer and sessile capitulum and somewhat larger leaves and stipules.

2. *CEPHAELIS CUNEATA*, Korth. in Ned. Kruidk. Arch. II. 248. A shrub; young branches thinner than a goose-quill, glabrous, the nodes sometimes close together and always marked by the pale coriaceous bases of the deciduous stipules. *Leaves* thickly membranous, oblanceolate or elliptic-oblancoate, gradually narrowed from above the middle into the slightly winged petiole; both surfaces glabrous, olivaceous when dry, the lower the paler; main-nerves 10 to 18 pairs, curved, spreading and ascending, indistinct on the upper surface when dry but distinct on the lower, the midrib broad; length from 5 to 10 in.; breadth 1 to 2.5 in.; petioles narrowly winged, .5 to 1.5 in. long. *Stipules*

coriaceous, broadly ovate and about .5 in. long or forming small shallow, cups .1 in. deep always with more or less broad discoloured edges. *Capitulum* pedunculate, from .8 to about 1.25 in. in diam. enveloped in thickly membranous, veined, involueral bracts, the inner being mostly orbicular-oblong but the two or three lower (external) elongate-oblong and connate; the peduncle from 1 to 3 in. long, ebracteate. *Flowers* .75 in. long. *Calyx* only .15 in. long, cylindric but widening slightly at the truncate apex. *Corolla* .65 in. long, infundibuliform, the mouth with 5 short triangular reflexed lobes. *Anthers* linear-oblong, their apices slightly exerted. *Disk* large and deep. *Style* longer than the anthers; stigma fleshy, 2-lobed, exerted. *Fruit* .4 in. long, compressed, deeply grooved on the edges and with a stout dorsal ridge on each side, crowned by the calyx.

MALACCA: Griffith (K.D.) 3085; Goodenough 1979; Derry 609; Maingay (K.D.) 929; Hullett 790. SINGAPORE: Ridley 4966. JOHORE, King; Ridley 3733, 6405. PAHANG: Ridley 2198. PERAK: Scortechini 343; Ridley 2924; King's Collector 1104, 6218; Wray 1497, 1977.

Sir Joseph Hooker considers *C. cuneata*, Korth. to be a species, and in deference to his opinion we have kept it up. The two chief characters, on which he relies to separate it from *C. Griffithii* are the pedunculate inflorescence and the narrower leaves. But, in a large suite of specimens, these break down, for there are specimens in which distinct peduncles are associated with the broadly oblanceolate leaves of *C. Griffithii*. A third and minor character used to separate the two is the size of the stipules,—those of *C. Griffithii* being 1 in. in diam., and those of *C. cuneata* only .25 in. But, here again, there are numerous variations which do not fit in as distinctive marks with the other two characters. I think it might be better to treat *C. cuneata* as a variety of *C. Griffithii*, referring to it (amongst the specimens cited above) only Griffith 3085, Maingay 929 and Hullett 790.

3. CEPHAELIS RIDLEYI, King, n. sp. Like *C. Griffithii*, but with rather narrowly elliptic leaves, tapering to each end, the main-nerve faint and only 8 to 10 pairs, 8 or 9 inches in length and from 2.5 to 3 in. in breadth; stipules lanceolate not coriaceous, the capitules shortly trichotomous, 2.5 to 3 in. in diam. on thick peduncles 1 in. long, subtended by two boat-shaped bracts 1.35 in. long, flowers shorter than the lanceolate inner bracteoles.

SINGAPORE: Ridley 9515; Yapp 433. PENANG: Curtis. SELANGOR: Ridley 7417.

51. LASIANTHUS, Jack.

Shrubs or small trees, often foetid, with terete branches often compressed at the nodes. *Leaves* distichous, more or less acuminate (often very much so), the veins transverse and often distinct; stipules usually broad. *Flowers* small, in axillary, often bracteate, sessile (rarely pedun-

clod), fascicles on condensed cymes. *Calyx-tube* short; the limb with 3 to 5 long or short persistent teeth, sometimes truncate. *Corolla* funnel- or salver-shaped, its throat villous; the limb with 3 to 7 valvate lobes. *Stamens* 4 to 6, inserted by short filaments on the throat, often apiculate, included. *Style* long or short, stigmas 3 to 9, short, blunt; ovules 1 in each cell, basal, erect, usually linear. *Drupe* small, containing 3 to 9 triquetrous 1-seeded pyrenes. *Seeds* narrow, with membranous testa; embryo terete; radicle slender, inferior.—*DISTRIB.* About 50 species, mostly tropical Asiatic.

A genus resembling in facies *Urophyllum*; but distinguished from that by its 1-seeded pyrenes and deeply-lobed, not truncate, calyx-limb; also by its larger stipules, and shorter corolla-tube.

Flowers 4-5-merous:—

Glomeruli hemispheric, sessile, not longer than the petioles; bracts and flowers numerous:—

Glomeruli partially or entirely covered (at least when young) by the persistent, often coriaceous, stipules; leaves usually more than 8 in. long; bracts longer than the flowers (except in No. 43, var.):—

- | | |
|--|---------------------------|
| Leaves elliptic-oblong, hispidulous on both surfaces | 1. <i>L. scabridus</i> , |
| Leaves oblanceolate, glabrous on the upper surface, pubescent (usually minutely so) on the lower | 2. <i>L. Griffithii</i> , |
| Leaves oblong-lanceolate, glabrous on both surfaces | 3. <i>L. stipularis</i> , |

Glomeruli not covered by the more or less deciduous stipules, bracts longer than the flowers:—

- | | |
|---|-----------------------------|
| Bracts unequal, diminishing in size inwards; the outer ovate-lanceolate often 1 in. long; the inner lanceolate or linear; pubescence of leaves rusty | 4. <i>L. cyanocarpus</i> , |
| Bracts uniform, all linear and densely hispid; leaves oblong-lanceolate, thickly coriaceous, rugulose and glabrous on the upper surface; the lower softly pubescent | 5. <i>L. rhinocerotis</i> , |
| Bracts uniform, all broad; leaves membranous; pubescence of leaves yellowish | 6. <i>L. inaequalis</i> , |

Cymes twice as long as the petioles with few flowers and few linear hirsute bracts shorter than the flowers; leaves coriaceous, elliptic-lanceolate acute, glabrous above (except the midrib), softly hairy and reticulate below, main-nerves 11 to 13 pairs; pyrenes 5 to 7

7. *L. pulosus*.

Cymes not much longer than the petioles with few flowers but many linear softly hairy bracts longer than the flowers; leaves membranous, narrowly elliptic, somewhat oblanceolate, quite glabrous above; main-nerves 8 or 9 pairs

8. *L. Ridleyi*.

Cymes about as long as the petioles with few flowers and many linear pubescent bracts shorter than the flowers; leaves thinly membranous, narrowly elliptic acuminate, glabrous above and minutely pubescent beneath; main-nerves 5 or 6 pairs; pyrenes 4

9. *L. flavicans*.

Cymes shorter than the petioles, few-flowered, bracts few:—

Leaves 8 to 10 in. long:—

All parts quite glabrous; bracts small, fimbriate

leaves 4.5 to 6 in. long

10. *L. longifolius*.

Leaves pubescent at least below, more or less

oblanceolate, bracts linear:—

Main-nerves of leaves 4 pairs

11. *L. constrictus*.

Main-nerves of leaves 6 to 8 pairs—

Stipules linear, hirsute, as long as the petioles;

calyx .1 in. long; corolla .3 in. long, its lobes

narrow

12. *L. singaporensis*.

Stipules triangular, sub-acute or bifid; calyx

.25 in. long; corolla shorter than the calyx, its

lobes oblong, blunt

13. *L. ellipticus*.

Leaves elliptic-ovate, tapering to each end, nearly

glabrous; main-nerves 4 to 6 pairs, faint like the

reticulations; bracts linear; flowers under .1 in. long

14. *L. subspicatus*.

Leaves oblong-lanceolate; main-nerves 5 pairs, as-

cending, the reticulations horizontal, strong, puberulous

on the under surface; bracts broad; flowers .15

in. long

15. *L. Wiayi*

Leaves oblong, acute at both ends, under surface pu-

bescient everywhere; main-nerves 6 or 7 pairs, as-

cending; bracts oblong, acuminate, flowers .3 in. long.

16. *L. Kurzii*.

Leaves 2 to 4 in. long, much narrower than long:—

Bracts of cymes large, broadly ovate to elliptic

17. *L. subinaequalis*.

Bracts of cymes linear:—

Upper surfaces of leaves quite glabrous; calyx-lobes

crowning the fruit, .25 in. long; pyrenes 5

18. *L. coronatus*.

Upper surfaces of leaves glabrous except for a few

hairs on the midrib; calyx teeth on the fruit short:

pyrenes 8

19. *L. appressus*.

Upper surfaces of leaves glabrous except the cinereous-

tomentose midrib; under surfaces minutely pilose;

bracts of cyme lanceolate or oblanceolate, tapering

to each end; flowers 4-merous

20. *L. attenuatus*.

Both surfaces of the leaves and all parts of the plant

with coarse flexuose hairs with bulbous bases; bracts

of cyme linear, hispid; flowers 5-merous

21. *L. densifolius*.

Cymes obraceate, sessile, shorter or rarely a little longer than the leaf-petioles:—

Leaves quite glabrous on both surfaces:—

Leaves 7 to 12 in. long and 2·5 to 3·5 in. broad :—

Lower surfaces of leaves at first puberulous, afterwards quite glabrous, their main-nerves 16 to 20 pairs; stipules 1 in. long, coriaceous, sagittate; calyx shortly campanulate, 1 in. long, obscurely 4- or 5-toothed; fruit sub-globular, glabrous, 6-ridged; pyrenes 5 or 6

22. *L. robustus.*

Lower surfaces of leaves always quite glabrous; main-nerves of leaves 10 to 12 pairs; stipules 2 in. long, triangular, acuminate; calyx 1·5 in. long, widely tubular, the mouth truncate, fruit hairy; pyrenes 4

23. *L. coriaceus.*

Main-nerves of leaves 10 pairs; stipules 1·5 in. long, broadly triangular with abrupt oblong apices; calyx 2·5 in. long, tubular, the mouth truncate but obscurely 4-toothed

24. *L. pergamaceus*

Leaves 3·5 to 6 in. long :—

Leaves elliptic or oblanceolate-elliptic, 1·35 to 2·5 in. broad; main-nerves 5 pairs; fruit ellipsoid, 4-ridged, 1·45 in. long; pyrenes 4, rugulose

11. *L. constrictus.*

Leaves oblong-lanceolate, 1 to 1·4 in. broad; main-nerves 8 or 9 pairs; fruit sub-globose, 2 in. in diam.; pyrenes 4, smooth

25. *L. malaccensis.*

Leaves quite glabrous on both surfaces except for a few adpressed hairs on the lower part of the midrib on each, elliptic-oblong, sharply acuminate, 5 to 6·5 in. long and 1·5 to 2 in. broad; main-nerves 8 or 9 pairs

26. *L. chinensis.*

Leaves glabrous on both surfaces except the midribs and 10 to 13 pairs of main-nerves, adpressed-puberulous on both, elliptic-oblong, 3 to 4·25 in. long and 1·25 to 1·5 in. broad

27. *L. Wightianus.*

Leaves quite glabrous above, minutely sub-strigose below, elliptic or oblong-elliptic, bluntly acuminate or sub-acute :—

Leaves with 10 or 12 pairs of main-nerves

28. *L. pterospermus.*

Leaves with 3 or 4 pairs of main-nerves

11. *L. constrictus.*

Leaves glabrous on the upper surface, the lower sparsely pilose everywhere

7. *L. pilosus*
VAR. *angustifolius*

Leaves glabrous on the upper surface, the lower hairy on the midrib and main-nerves :—

Leaves 6 to 10 in. long, elliptic or obovate-elliptic; main-nerves 7 or 10 pairs

29. *L. perakensis.*

Leaves 3 to 7 in. long :—

Leaves narrowly oblong-lanceolate, five or six times longer than broad, their apices candate-acuminate :—

Neither surface of leaves scaly; main-nerves 12 to 14 pairs; cymes 2-to 3-flowered; mouth of

- calyx with 5 triangular acuminate lobes; corolla tubular, its lobes pubescent; pyrenes 4 or 5 ... 30. *L. angustifolius*.
 Both surfaces of leaves minutely scaly; main-nerves about 7 pairs; cymes 5-to 7-flowered; mouth of calyx truncate, entire; corolla salver-shaped, the lobes densely hirsute; pyrenes 7 or 8 ... 31. *L. oblongus*.
 Leaves 5 or 6 in. long, oblong, sub-acute or shortly and bluntly acuminate; under surfaces sub-glabrous between the 9 to 11 pairs of adpressed-tomentose main-nerves and veins; calyx cupular-campanulate with 5 triangular teeth ... 7. *L. pilosus*.
 Leaves 3 to 4.5 in. long, ovate-lanceolate, shortly acuminate; under surface glabrous except the pubescent midrib and 5 or 6 pairs of pubescent main-nerves; calyx with 5 long unequal linear-lanceolate lobes ... 32. *L. montanus*.
 Leaves 2.5 to 3.5 in. long, lanceolate or elliptic-lanceolate, long-acuminate; under surface softly pubescent on the 4 to 6 pairs of main-nerves; calyx with 5 sub-equal linear-lanceolate lobes; fruit sub-globular, sparsely pilose; pyrenes 5 ... 33. *L. Curtisii*.
 Leaves never more than 3 in. long, elliptic-lanceolate, acuminate, glabrous above, reticulate beneath and adpressed-puberulous on the 6 or 7 pairs of bold main-nerves; calyx-lobes 5, linear-lanceolate, unequal ... 34. *L. pseudo-lueidus*.
 Leaves never more than 1.5 in. long, oblong-lanceolate, acute or sub-acute, glabrous except the lower surfaces of the 6 to 8 pairs of minutely adpressed-puberulous main-nerves; calyx-teeth short triangular; pyrenes 4 ... 35. *L. nervosus*.
 Leaves scaberrulous on the upper surface, the lower scabrid-puberulous between the softly puberulous 4 to 6 pairs of main-nerves, elliptic or ovate-elliptic, 4 to 5 in. long; calyx narrowly campanulate ... 36. *L. Harveyana*.
 Leaves sparsely clothed with stiff bulbous hairs on the upper surface, the lower with more numerous shorter hairs, oblong-lanceolate, much acuminate; main-nerves 16 to 18 pairs; calyx with 5 deep lanceolate lobes ... 37. *L. ferrugineus*.
 Leaves sparsely and minutely strigose on the upper surface, pilose on the lower, but the 7 to 10 pairs of main-nerves and the midrib tomentose on the latter surface; length 2.5 to 3.5 in.; calyx campanulate with sub-truncate obsoletely toothed mouth ... 38. *L. tomentosus*.
 Inflorescence solitary, on peduncles much exceeding the petioles in length:—
 Peduncles rather short, 3- to 5-owered; leaves

- narrowly elliptic-oblong, coriaceous, 4 to 5 in. long; almost glabrous, the reticulations bold and horizontal 39. *L. scalariformis*.
 Peduncles filiform, 1- to 2-flowered; leaves 2 to 3 in. long, sessile or nearly so, broad and unequal at the base; both surfaces more or less hispidulous-pubescent ... 40. *L. filiformis*.
 Peduncles filiform, 1-to 3-flowered, leaves under 1 in. long, petiolate, sub-rhomboidal or ovate; glabrous except sometimes the midrib at its base on the lower surface ... 41. *L. gracilis*.

Flowers 3-merous:—

- Calyx and corolla 3-cleft; anthers and pyrenes each 3:—
 Leaves 5·5 to 8·5 in. long, narrowly elliptic or sub-obovate-elliptic, usually glabrous; reticulations distinct, especially below, as are the 5 or 6 pairs of main-nerves; flowers puberulous; fruit obliquely elliptic ... 42. *L. Mainjaya*.
 Leaves 3·5 to 6 in. long, oblong-elliptic or lanceolate, everywhere glabrous; reticulations and 7 to 10 pairs of main-nerves faint; fruit depressed-trigonous or subdidymous; pyrenes with a transverse partition and thus falsely 2-celled ... 43. *L. lucidus*.

1. *LASIANTHUS SCARRIDUS*, King & Gamble, n. sp. Young branches about as thick as a goose-quill, glabrous, black when dry. *Leaves* coriaceous, oblong or oblong-elliptic, shortly acuminate, the base narrowed and usually slightly unequal; both surfaces pale-brown when dry, rugulose reticulate, scaberulous from numerous short stiff hairs with large bulbous bases, the midrib prominent and hirsute, the main-nerves and veins depressed, under surface with non-bulbous hairs longer and softer than those of the upper; the midrib and 10 to 13 pairs of curved spreading main-nerves hirsute like the midrib; length 4·5 to 8 in.; breadth 1·35 to 2·35 in.; petiole ·5 to ·7 in.; hirsute; stipules broadly triangular-acute or obtuse, thickly coriaceous, glabrous, ·4 or ·5 in. long, and nearly as broad, persistent. *Glomeruli* somewhat shorter than the petioles, sessile, dense, many-flowered, partly covered by the stipules when young, bearing very numerous linear obtuse bracts, black, glabrous and shining on their posterior surface, but on the edges and in part covered with coarse bristly hairs. *Flowers* few, sessile, much shorter than and concealed amongst the bracts. *Calyx* narrowly campanulate with a glabrous tube, and 5 lanceolate pubescent lobes. *Fruit* glabrous, except the persistent calyx-lobes, about ·2 in. long; pyrenes 5, rugulose.

JOHORE: Ridley 6463, 11170, 7112.

2. *LASIANTHUS GRIFFITHII*, Wight in Calc. Journ. Nat. Hist. VI, 505. Young branches as thick as a swan's-quill, terete below but compressed in the very young parts, sparsely and deciduously pubescent, ultimately sub-glabrous, dark-coloured when dry. *Leaves* large, thickly

coriaceous, oblanceolate-elliptic, shortly acuminate, the base acute; both surfaces pale-brown tinged with olivaceous; the upper quite glabrous, often rugulose from the depression of the nerves and reticulations; the midrib not depressed but channelled near the base; under-surface paler, the bold midrib, nerves and veins, and their interspaces in a less degree pubescent; length 8 to 12 inches; breadth 3 to 4 in.; petioles .3 to .5 in., winged above; stipules broadly triangular, obtuse or acute, coriaceous, partly covering the inflorescence when young, more or less persistent. *Glomeruli* somewhat longer than the petioles, hemispheric, condensed, many-flowered; flowers sessile, .2 in. long, imbedded amongst numerous linear densely hirsute bracts somewhat longer than themselves. *Calyx* tubular-campanulate or campanulate, narrowed to the base, glabrous except the hirsute ovate or lanceolate lobes. *Corolla* in the perfect flowers .3 in. long, salver-shaped, the tube narrow, glabrous except the villous throat; the limb with 5 narrowly lanceolate hirsute reflexed lobes. *Anthers* 5, exserted beyond the dense villous hairs of the throat, linear-oblong; filaments short. In *cleistogamic flowers* (which are numerous) the corolla smaller than the calyx but resembling it, 5 or 6 lobed. *Fruit* glabrous, ovoid, crowned by the slightly accrescent calyx-lobes, about .2 in. long; pyrenes 5. Hook. fil. Fl. Br. Ind. III. 179.

MALACCA: Griffith (K.D.) 2935. JOHORE: Ridley 11177, 11179. SINGAPORE: Ridley 4121. PERAK: King's Collector 496.—DISTRIB. Borneo; *Haviland* 84.

VAR. *latibracteata*, King & Gamble; bracts of inflorescence broad, obtuse, glabrous outside, hirsute inside, shorter than the flowers, often becoming thick, white and polished when old, persistent.

SELANGOR: Ridley 10196. PERAK: Ridley 9528; *Scortechini* 612.

3. *LASIANTHUS STIPULARIS*, Blume Bijdr. 997. A slender shrub 3 to 6 feet high; all parts except the bracts and lobes of corolla inside glabrous; young branches half as thick as a goose-quill, dark-coloured when dry, smooth. *Leaves* membranous, oblong-lanceolate, shortly and rather abruptly cordate-acuminate, narrowed from below the middle to the short petiole; both surfaces pale-brown when dry, glabrous, the upper shining; main-nerves 9 to 12 pairs, curved, rather distinct on both surfaces, the midrib grooved on the upper, prominent on the lower surface; the main-nerves distinct on both; length 5 to 7 in.; breadth 1.5 to 2 in.; petioles .25 to .35 in. long. *Stipules* broadly ovate-cordate, sub-acute, .5 to .6 in. long, completely covering the inflorescence. *Flowers* nearly .3 in. long, on very short flat pedicels, surrounded by numerous unequal narrowly lanceolate densely hirsute bracts longer than themselves. *Calyx* campanulate, ridged; the mouth with 4 or 5 broadly triangular acute teeth. *Corolla* thrice as long as the calyx; the tube

cylindric; the lobes 4 or 5, oblong, blunt, villous inside. *Stamens* 4 or 5, on short compressed filaments; anthers oblong, their tips exerted. *Fruit* ovoid-glabose, sub-ligneous, glabrous, with 8 to 10 vertical ridges, crowned by the calyx-lobes, .25 in. long, and .2 in. in diam., 4- or 5-celled, with a single compressed erect seed in each cell. Kurz Fl. Burm. II. 32. Hook. fil. Fl. Br. Ind. III. 179. *Mephitidia stipularis*, DC. Prod. IV. 453.

SINGAPORE: Ridley 4903, 6559, 10419; King. SELANGOR: Ridley 8230, 8575. PERAK: Scortechini 213; Wray 2019; Ridley 9743; King's Collector 340.—DISTRIB. Malay and Andaman Archipelagos.

4. *LASIANTHUS CYANOCARPUS*, Jack in Trans. Linn. Soc. XIV. 125. A shrub 6 to 8 feet high; all parts more or less tawny- or rusty-hirsute, the hairs shining and often flexuose; young branches half as thick as a goose-quill. *Leaves* coriaceous, oblong, oblong-elliptic or oblanceolate-oblong, shortly acuminate, the base somewhat narrowed, unequal-sided; upper surface dark olivaceous-brown when dry, the lower paler with the transverse veins distinct; main-nerves 7 to 10 pairs, curved, spreading and ascending, bold on the lower surface, depressed on the upper when dry; length 4.5 to 6.5 in.; breadth 1.65 to 2.25 in.; petioles .15 to .25 in. *Stipules* narrowly triangular, acuminate, .2 in. long. *Clymes* sessile, shorter than the petioles, enveloped by a number of densely hirsute bracts diminishing in size inward; the outer ovate-lanceolate acuminate and often 1 in. or more in length; the inner much smaller, lanceolate or linear. *Flowers* only 3 or 4, sessile, concealed amongst the numerous bracts, only about .25 in. long and shorter than even the innermost bracts. *Calyx* longer than or about as long as the corolla, campanulate, with 4 or 5 long narrow hirsute lobes. *Corolla* tubular, glabrous inside; its lobes oblong, blunt. *Anthers* oblong, blunt, almost sessile. *Fruit* ovoid-globular, glabrous, but crowned by the long hirsute calyx-lobes, .2 to .25 in. long, separating into 4 or 5 three-sided, one-seeded pyrenes. Kurz For. Fl. Burma, II. 32; Hook. fil. Fl. Br. Ind. III. 179. *L. bracteatus* and *L. Roxburghii*, Wight in Calc. Journ. Nat. Hist. VI. 501, 502. *L. oculus-Cati*; Miq. Fl. Ind. Bat. II. 315. *L. laevicaulis*, Kurz in Trimen's Journ. Bot. 1875, p. 327. *Lasianthus*? Wall. Cat. 8440. *Mephitidia cyanocarpa*, DC. Prod. IV. 452. *M. rhinozerotis*, Kurz in Andaman Report, Append. A. 40; (not of Blume?). *Triosteum hirsutum* Roxb. Fl. Ind. I. 538. *Rubiaceae*, Wall. Cat. 8305.

In all the Provinces, common.—DISTRIB. British India, Malay Archipelago.

VAR. *subsessilis*; petioles only about .1 in. long, bases of leaves oblique.

PERAK: Ridley 9730; King's Collector 472; Scortechini 1207.

Wall. Cat. 8440 belongs here.

5. *LASIANTHUS RHINOCEROTIS* Blume Bijdr. 996. A shrub or small tree; young branches rather thinner than a goose-quill, covered like the petioles with dense short rusty-tomentum. *Leaves* coriaceous, narrowly oblong-lanceolate, acute, the base rounded; upper surface glabrous, the midrib depressed when dry, the nerves depressed, the veins inconspicuous; lower surface everywhere hairy, the 10 to 12 bold oblique ascending little-curved main-nerves and the stout midrib tomentose; the prominent transverse veins pubescent and the interspaces puberulous; length 4 to 7 in.; breadth 1.5 to 2.25 in.; petioles .25 in. long; stipules broadly triangular acute, pilose, .1 to .2 in. long. *Glomeruli* sessile or on short pedicels, axillary, bearing very numerous narrow bracts, the outer linear, the inner subulate, all softy rusty-pilose, mostly .5 or .6 in. long, the inner sometimes shorter. *Flowers* much shorter than the bracts and concealed by them, few, sessile or subsessile. *Corolla* with 5 deep concave lobes, pilose outside. *Fruit* ovoid, pointed, blue, about .15 in. long, separating into 5 three-cornered pyrenes. Miq. Fl. Ind. Bat. II. 315. *Mephitidia rhinocerotis* DC. Prod. 453; Korthals in Ned. Kruidk. Arch. II. 220.

PERAK: at elevations of 4500 feet and upwards. *Scortechini* 532, 537; *Wray* 237; *King's Collector* 3209, 3809. SELANGOR: *Kelsall* 1993. —DISTRIB. Java.

Closely allied to *L. crinitus* Jack, but differing in the characters of the hairs and bracts. In that species the outer bracts are much longer than the inner; in this the outer bracts are not longer and only slightly broader than the inner.

6. *LASIANTHUS INAEQUALIS*, Blume Bijdr. 996. A shrub; young branches twice as thick as a crow-quill, densely tawny-pilose like the petioles. *Leaves* membranous, olivaceous-green when dry, elliptic, ob-lanceolate-elliptic or oblong, shortly acuminate, more or less narrowed to the rounded, sometimes slightly oblique, base; upper surface shining, glabrous, except the bold pilose midrib and puberulous nerves, minutely reticulate; lower surface softly and sparsely pilose; length 3 to 5.5 in.; breadth 1 to 2 in.; petiole .2 to .25 in.; stipules linear, pilose, .6 or .7 in. long, deciduous. *Glomeruli* axillary, twice as long as the petioles, few-flowered, the bracts broadly ovate, abruptly acuminate, bearing much yellow hair, especially externally, .7 in. in length. *Flowers* .35 in. long, sessile. *Calyx* campanulate, with 4 deep unequal lanceolate spreading lobes. *Corolla* shorter than the calyx, with a short tube and 4 oblong lobes, glabrous inside, but outside covered like the calyx with long yellow hair. *Anthers* ovate, almost sessile. *Fruit* narrowly ovoid, sparsely hairy, crowned by the accrescent connivent calyx-lobes; length .35 in. (of which nearly half is calyx); pyrenes 4, three-sided, rugose.

PENANG: at 1500 feet; *Curtis* 760. PERAK: *Ridley* 9726.

A very distinct species and not resembling *L. cyanocarpus* Jack, to which some authors have reduced it. It is much more nearly allied to *L. subinæqualis*, King & Gamble.

7. *LASIANTHUS PILOSUS*, Wight in Calc. Journ. Nat. Hist. VI. 506. A shrub or small tree; young branches about as thick as a goose-quill; covered like the petioles and undersurfaces of the leaves (and often the stipules and inflorescence) with very dark short rusty tomentum, sometimes tinged with green. *Leaves* coriaceous, dark olivaceous-brown when dry, oblong or elliptic-lanceolate, the apex sub-acute or shortly and abruptly acuminate, the base sub-cuneate or rather rounded; both surfaces boldly and transversely reticulate when dry; the upper sparsely pilose or glabrous except sometimes the depressed faint midrib, hirsute; the lower sub-glabrous or sparsely hairy between the prominent adpressed-tomentose main-nerves, the midrib bold on the lower surface, depressed and glabrous on the upper; main-nerves 9 to 13 pairs, curved, ascending; length 4.5 to 6 in.; breadth 1.25 to 2.5 in.; petiole .1 to .3 in.; stipules triangular-lanceolate, acute, hairy, about .1 in. long. *Cymes* glomerulate, sessile, few-flowered, longer (sometimes shorter) than the petioles. *Flowers* sessile; bracts shorter than the calyx, hirsute. *Calyx* about .2 in. long, cupular-campanulate, hirsute outside, with about 5 triangular teeth. *Corolla* 5- to 7-cleft, dirty purple, shortly campanulate. *Fruit* blueish-black and ultimately glabrous, sub-globular, not longer than the persistent calyx-lobes; pyrenes 5 to 7. Hook. fil. Fl. Br. Ind. III. 182. *L. setosus*, Wight in Calc. Journ. Nat. Hist. VI. 506; Hook. fil. Fl. Br. Ind. I. c. 181.

MALACCA: *Griffith* (K.D.) 2918; *Maingay* (K.D.) 869; *Cuming* 239; *Hervey*. PERAK: at elevations of about 5000 feet; *Wray* 876. JOHORE: *Ridley* 11180. SELANGOR: *Ridley* 8231.

VAR. *angustifolia*, King & Gamble; branches more hirsute and with greenish-brown tomentum; leaves rather membranous, their lower surfaces sparsely and shortly pilose between the nerves, 4 or 5 in. long and 1 to 1.15 in. broad; stipules lanceolate.

MALACCA: *Griffith*; *Maingay*. PERAK: *Scortechini* 374?—DISTRIB. Burma.

VAR. *glabra*, King and Gamble; leaves with only 9 to 11 pairs of nerves, their upper surfaces quite glabrous even on the midrib, the reticulations not depressed and not very distinct.

SELANGOR: *Ridley* 7424.

8. *LASIANTHUS RIDLEYI*, King & Gamble, n. sp. A shrub; young branches, petioles and under surfaces of the midribs of the leaves densely and softly pubescent. *Leaves* membranous, narrowly elliptic, somewhat

oblanceolate, sub-acute, tapering in the lower third to the slightly rounded base; both surfaces olivaceous when dry; the upper glabrous, shining, with the midrib and nerves slightly prominent; the lower paler with prominent transverse reticulations, downy between the veins; main-nerves 8 or 9 pairs, slightly curved, ascending, thin but distinct on the lower surface like the midrib; length 7 to 8 in.; breadth about 2·5 in.; petiole about 2 in.; stipules linear, hirsute. *Glomeruli* shorter than the petioles, bearing a few flowers hidden amongst numerous linear bracts with many pale spreading hairs. *Calyx* sessile, 15 in. long, narrowly campanulate; the tube glabrous; the lobes 5, acuminate, erect, covered outside with long stiff white hairs. *Corolla* and fruit unknown.

SINGAPORE: *Ridley* 3620a.

9. *LASIANTHUS FLAVICANS*, King & Gamble, n. sp. Young branches thinner than a goose-quill, clothed with dense short yellowish-brown deciduous tomentum like the petioles. *Leaves* thickly membranous, narrowly elliptic, the apex acuminate, the base cuneate; upper surface olivaceous-green, glabrous except the lower part of the midrib, the nerves indistinct, shining; lower surface darker and with much short minute pubescence, especially on the 5 or 6 pairs of sharply ascending bold main-nerves and conspicuous transverse veins; length 5 to 7 in.; breadth 1·25 to 2 in.; petiole 3 to 35 in. short; stipules shorter than the petioles while in flower (longer in fruit), oblong, blunt or acute, adpressed to the stem, pubescent. *Glomeruli* about as long as the petioles, few-flowered, bearing numerous linear very pubescent bracts shorter than the flowers. *Flowers* few, sessile or nearly so, 3 in. long. *Calyx* narrowly campanulate, glabrous, constricted below the 4 large triangular, spreading sparsely hirsute teeth. *Corolla* twice as long as the calyx and exceeding the bracts, clavate in bud, glabrous outside except for a few hairs on the back of the lobes, villous inside, salver-shaped, the limb with 4 broad triangular teeth. *Anthers* 4, broadly ovate, on short filaments; style as long as the corolla. *Fruit* elliptic, pointed towards each end, the apex crowned by the small calyx-teeth, glabrous, 45 in. long, and 25 in. diam.; pyrenes 4, rugulose.

SINGAPORE: in the Botanical Garden jungle; *Ridley* 4394, 6927.

PERAK: *Scortechini*. PAHANG: *Ridley* 2223; *King's Collector* 10974.

VAR. *subglabra*, King, hairs short, often deciduous.

PERAK: *Curtis* 1334. SELANGOR: *Ridley* 4895.

10. *LASIANTHUS LONGIFOLIUS*, Wight in Calc. Journ. Nat. Hist. VI. 514. Shrub or small, tree? All parts quite glabrous; young branches as thick as a goose-quill, black when dry. *Leaves* coriaceous, broadly or narrowly elliptic, sometimes oblong or oblanceolate-elliptic, sub-acute or shortly and bluntly acuminate, much narrowed to the petiole,

both surfaces shining, boldly and transversely reticulate, the lower scaberulous; main-nerves 11 to 13 pairs, curved, spreading and like the midrib very prominent and minutely hispid on the lower, less prominent and glabrous on the upper; length 8 to 10 in.; breadth 2 to 3·5 in.; petioles ·3 to ·4 in.; stipules nearly as long as the petioles, coriaceous, triangular, sub-acute or blunt, partly covering the inflorescence, deciduous. *Cymes* shorter than the petioles, sessile. *Flowers* 4 to 6, sessile, surrounded at their bases by small rufescent fimbriate bracts much shorter than themselves. *Calyx* ·2 in. long, sessile, coriaceous, tubular, with 4 small blunt teeth, slightly puberulous outside. *Corolla* not seen. *Ovary* 4-celled, 4-seeded. Hook. fil. Fl. Brit. Ind. III. 187.

MALACA: *Griffith* (K.D.) 2936; *Maingay* (K.D.) 867. PERAK: *Wray*; *Ridley* 7190. SELANGOR: *Ridley* 4904.

11. *LASIANTHUS CONSTRICTUS*, Wight in Calc. Journ. Nat. Hist. VI. 515. A shrub; young branches twice as thick as a crow-quill, compressed or sub-terete, like the petioles sparsely and deciduously strigose. *Leaves* membranous or thinly coriaceous, narrowly elliptic or elliptic-oblong, sometimes oblanceolate-elliptic, the apex rather bluntly acuminate, the base cuneate or rounded; both surfaces pale-olivaceous, minutely reticulate, and more or less shining when dry; the midrib on the lower surface minutely and sparsely strigose, otherwise both glabrous; main-nerves only 3 to 5 pairs, ascending and little curved, thin but distinct; length 3·5 to 5·5 in.; breadth 1·25 to 2·5 in.; petioles ·15 to ·2 in., corrugated, sparsely pubescent; stipules shorter than the petioles, lanceolate, adpressed-hairy, deciduous. *Cymes* sessile, shorter than the petioles (sometimes slightly longer) condensed, 4- to 6-, rarely 10-flowered; bracts minute or more usually absent. *Flowers* small, sessile or sub-sessile. *Calyx* ·1 to ·15 in. long, thick, narrowly campanulate, constricted below the 4- (rarely 3- to 5-) toothed mouth; teeth triangular, spreading, sparsely hairy. *Corolla* longer than the calyx, funnel-shaped, glabrous outside, the tube ·25 in. long, villous inside, the limb as long as the tube and with 5 sub-acute lobes. *Fruit* obliquely ellipsoid, tapering to each end, somewhat compressed, 4-ridged, rugulose, crowned by the small calyx, glabrous, ·35 in. long; and ·3 in. in diam.; pyrenes 4, sub-cylindric. Hook. fil. Fl. Br. Ind. III. 188 (excl. syn. Kurz Fl. Burm.) *Mephitidea* sp. Griff. Notul. IV. 267 t. 474, fig. 4.

SINGAPORE: *Ridley* 4902. SELANGOR: *Ridley*. BURMA: *Griffith*. PERAK: *King's Collector* 2564, 2780, 3591, 6065; *Scortechini*. PAHANG: *Ridley* 2222. JOHORE: *Ridley* 11183, 11189.—DISTRIB. Sumatra, *Beccari* P.S. 952; Borneo, *Haviland*.

12. *LASIANTHUS SINGAPORENSIS*, King & Gamble n. sp. A shrub?

Young branches, petioles and under surfaces of the leaf-midribs cinereous-pilose. *Leaves* thinly coriaceous, narrowly elliptic, more or less oblanceolate, tapering to each end, the apex obtusely acuminate; upper surface olivaceous when dry, glabrous, shining, the midrib distinct and channelled, the nerves rather faint; under surface pale-cinereous, minutely and softly pubescent, the 6 or 7 pairs of spreading ascending main-nerves bold like the transverse veins; length 5 or 6 in.; breadth 1.75 in.; petiole .2 in.; stipules linear, hirsute, about as long as the petioles. *Cymes* sessile, shorter than the petioles, 4- to 6-flowered; bracts 2 or 3 at the base of each flower, linear-hirsute, about as long as the calyx. *Flowers* .4 in. long, sessile. *Calyx* .1 in. long, campanulate, the tube narrow, the limb wide with 5 deep triangular acute spreading teeth. *Corolla* funnel-shaped, .3 in. long, outside glabrous except for a few hairs near the mouth, inside villous; lobes of the mouth 5, narrow. *Anthers* 5, narrowly oblong. *Fruit* unknown.

SINGAPORE: Ridley 9095.

13. *LASIANTHUS ELLIPTICUS* Wight in Calc. Journ. Nat. Hist. VI. 507. A tall shrub; young branches half as thick as a goose-quill, cinereous or sub-rusty adpressed-pilose like the petioles and under surfaces of the leaves. *Leaves* thinly coriaceous, olivaceous-brown when dry, narrowly elliptic or oblanceolate-elliptic, shortly acuminate, much narrowed to the base; upper surface glabrous, shining, the midrib, nerves and transverse veins rather distinct; main-nerves 7 or 8 pairs, slightly curved, ascending, bold on the under surface like the midrib; length 4.5 to 6.5 in.; breadth 1.5 to 2 in.; petioles .15 to .25 in.; stipules broadly triangular-lanceolate, sub-acute or sometimes bifid, almost glabrous, shorter than the petioles. *Glomeruli* shorter than the petioles, few-flowered, sessile, bearing (mostly on the outside) a few hirsute lanceolate bracts. *Calyx* .25 in. long, widely campanulate, tapering much to the base, deeply divided into 5 triangular acuminate spreading lobes, densely hirsute externally, sparsely so internally. *Corolla* half as long as the calyx, divided almost to the base into 5 oblong blunt lobes, hirsute outside and glabrous inside. *Anthers* 5, short, sessile. *Fruit* unknown. Hook. fil. Fl. Br. Ind. III. 182.

PENANG: at an elevation of 2000 feet; Curtis 1594.

14. *LASIANTHUS SUBSPICATUS*, King & Gamble, n. sp. A small tree; young branches rather thinner than a goose-quill, 2-grooved like the petioles, under surfaces of the leaves and the inflorescence with minute, usually pale, flocculent deciduous pubescence. *Leaves* membranous, ovate-elliptic, much acuminate, the base cuneate; both surfaces brown when dry, the upper quite glabrous, the nerves and reticulations faint; the lower glabrous, except the midrib and nerves, the reticulations

distinct; main-nerves 4 to 6 pairs, oblique rather straight; length 3·5 to 5 in.; breadth 1·25 to 1·85 in.; petioles ·25 in.; stipules elongated triangular, acute, about as long as the petioles, the midrib keeled. *Cymes* spiciform, usually about as long as the petioles, their axes somewhat elongated, bearing a few broadly lanceolate, acute or acuminate bracts much shorter than the 6 to 12 flowers, all parts except the inside of the calyx and the corolla-tube on both surfaces covered with short rather thick hair. *Flowers* sessile, broadly clavate in bud, under ·1 in. long. *Calyx* as long as the corolla-tube, campanulate, with 5 small, spreading, triangular teeth. *Corolla*-tube much shorter than the sub-globular bluntly 5-lobed limb. *Anthers* 5, linear, embedded in the dense white hair which lines the inside of the lobes. *Fruit* unknown.

PENANG: *Curtis* 2476. PERAK: *Wray* 863.

15. *LASIANTHUS WRAYI*, King & Gamble, n. sp. A small tree; young branches twice as thick as a crow-quill, slightly compressed, densely adpressed-pubescent. *Leaves* thinly coriaceous, oblong-lanceolate, tapering much and about equally to each end; upper surface quite glabrous, shining, faintly reticulate, olivaceous-brown; lower surface darker, adpressed-pubescent on the midrib and 5 pairs of rather bold ascending little-curved nerves, the connecting veins bold, horizontal, puberulous, the areolæ glabrous; length 3·5 to 5 in.; breadth ·75 to 1 in.; petioles about ·3 in.; stipules triangular, acuminate, much shorter than the petioles. *Flowers* ·15 in. long, two or three on a very short axillary tubercle having a few short broad pubescent bracts at its base. *Calyx* ·05 in. long; sessile, campanulate, with 4 small acute teeth, adpressed-hirsute like the tubular corolla; teeth of corolla blunt. *Anthers* 4, linear-oblong, inserted by short filaments in the villous ring in the throat. *Fruit* unknown.

PERAK: at an elevation of 4500 feet; *Wray* 257.

16. *LASIANTHUS KURZII*, Hook. fil. Fl. Br. Ind. III. 183. A shrub? Young branches twice as thick as a crow-quill, densely olivaceous-tomentose like the petioles, stipules, and under surfaces of the midribs and main-nerves of the leaves. *Leaves* thinly coriaceous, oblong, acute at both ends: upper surface dark olivaceous-brown, glabrous, shining, the midrib somewhat depressed (when dry); lower surface dark-olivaceous, pubescent on the distinct horizontal veins and on the 6 or 7 pairs of ascending main-nerves, also on the veins and on the interspaces; length 3·5 to 4·5 in.; breadth ·75 to 1·25 in.; petioles ·15 to ·2 in.; stipules lanceolate with broad bases, shorter than the petioles. *Cymes* sessile, condensed, few-flowered, without the corolla shorter than the petioles, with the corolla longer; bracts oblong, acuminate, few. *Flowers* ·3 in.

long, sessile. *Calyx* sparsely pilose, ovoid, tapering to the small 4-toothed mouth. *Corolla* pilose outside, white, longer than the calyx, salver-shaped, the tube narrowly funnel-shaped; its limb with 4 broad blunt hairy teeth each bearing near its base an oblong anther on a short filament. *Fruit* (*file* Curtis) blue, .5 in. long.

PENANG: at an elevation of 2000 feet; *Curtis*. SINGAPORE: *Ridley* 140.

We refer this to *L. Kurzii* with some hesitation, for it does not absolutely agree with specimens from the Andamans so named by Sir Joseph Hooker.

17. *LASIANTHUS SUB-INEQUALIS*, King & Gamble, n. sp. A shrub 3 to 5 feet high: young branches rather thicker than a crow-quill, densely rusty-tomentose like the short petioles. *Leaves* membranous, oblong-lanceolate, shortly acuminate, very little or not at all narrowed to the rounded sub-cordate, slightly oblique base; both surfaces pale, olivaceous-brown when dry; the upper sparsely pilose, densely so on the midrib; lower surface more or less pilose everywhere, densely so on the prominent midrib and 8 to 10 pairs of spreading curved main-nerves; length 2 to 3.5 in.; breadth .75 to 1 in.; petiole under .1 in.; stipules ovate to elliptic, sometimes tapering to each end, pilose, .35 to .5 in. long. *Glomeruli* few-flowered, axillary, not so long as the stipules, their bracts like the stipules but smaller. *Flowers* few, about .3 in. long, sessile. *Calyx* deeply divided into 4 unequal lanceolate lobes. *Corolla* about .15 in. long, divided into 4 short lobes, hairy outside like the calyx, concave and glabrous inside. *Anthers* 4, oblong, sessile. *Fruit* .35 in. long, of which half is formed by the persistent calyx-lobes, glo-bular, blue, sparsely hirsute; pyrenes 4, three-sided, smooth.

PERAK: *King's Collector* 157, 3358; *Wray* 2588, 3451; *Ridley* 9715; *Scortechini* 189.—DISTRIB. Sumatra: *Forbes* 2457: Java; on Mounts Salak and Pangerango.

Allied closely to *Lasianthus inaequalis* Bl.; King & Gamble, but with narrower subsessile leaves and much more conspicuous stipules, which are ovate or elliptic not linear.

18. *LASIANTHUS CORONATUS*, King & Gamble, n. sp. Young branches rather thicker than a crow-quill, covered like the petioles, stipules and lower surfaces of the leaf-midribs and main-nerves with soft brown tomentum. *Leaves* coriaceous, oblong-lanceolate, much acuminate, the base cuneate; both surfaces pale-brown when dry; the upper quite glabrous, except the tomentose lower fourth of the midrib, finely reticulate, the midrib and main-nerves depressed; lower surface darker than the upper, the reticulating veins transverse, bold and pubescent the enclosed spaces almost glabrous; main-nerves 5 or 6 pairs, bold,

spreading, tomentose; length 3 to 3·5 in.; breadth ·75 to 1 in.; petioles about ·1 in.; stipules linear, twice as long as the petioles. *Cymes* longer than the petioles, few-flowered, bearing a few linear tomentose bracts as long as the stipules and resembling them. *Calyx* & *corolla* unknown. *Fruit* sub-globular, somewhat narrowed at the base, the apex truncate, the sides deeply 5-grooved, the interspaces pubescent and rugulose, about ·25 in. long, crowned by the equally long or longer erect linear pubescent calyx-lobes; pyrenes 5, bony.

PERAK: *Scortechinii* 329.

A plant known only from *Scortichini's* imperfect specimens; named from the long conspicuous calyx-lobes on the apex of the fruit.

19. *LASIANTHUS APPRESSUS*, Hook. fil. Fl. Br. Ind. III. 181. A shrub; young branches thinner than a goose-quill, softly and densely hirsute like the petioles, stipules and bracts. *Leaves* sub-coriaceous, oblong-lanceolate, shortly acuminate, the base cuneate (often rather abruptly so); upper surface pale olivaceous-brown, glabrous, shining, the main-nerves and midrib depressed, the latter with 1 or 2 lines of adpressed hairs; lower surface paler and bearing many sub-adpressed yellowish hairs; especially on the main-nerves and rather prominent transverse veins; main-nerves 6 or 7 pairs, curved, ascending, bold and prominent on the lower surface; length 2 to 3 in.; breadth ·5 to ·75 in.; petiole ·1 to ·15 in. long; stipules oblong, blunt, adpressed to the stem, rather shorter than the outer flower-bracts. *Flowers* about ·15 in. long, sessile, sub-solitary, surrounded by linear-lanceolate, acuminate, hirsute bracts, the outer of which are ·25 in. long, the inner being smaller. *Calyx* campanulate, sparsely pilose, the limb with 4 short triangular rather blunt teeth. *Corolla* minute. *Fruit* depressed-globular, crowned by the short calyx-lobes, ·15 in. in diam., sparsely pilose; pyrenes 8, three-sided, smooth. *Lasianthus*, Wall. Cat. 8443 and 8442 partly.

MALACCA (on Mount Ophir) (*Griffith* (K.D.) 2927. PENANG: *Wallich; King; Deschamps*. JOHORE: *Ridley* 2925, 11183 and 4. PERAK: *Scortechinii*.

20. *LASIANTHUS ATTENUATUS*, Jack in Trans. Linn. Soc. XIV. 126. A shrub; young branches not much thicker than a crow-quill, covered like the petioles, and upper surfaces of the leaf-midribs with dense short cinereous-olivaceous tomentum. *Leaves* membranous, oblong, lanceolate, shortly acuminate, the base rounded and somewhat oblique upper surface (except the midrib) glabrous, dark-olivaceous; the lower paler, minutely pilose, especially on the midrib and 7 or 8 pairs of spreading ascending rather bold main-nerves; the reticulations faint; length 2 to 3·5 in.; breadth ·75 to 1 in.; petioles about ·1 in.; stipules

lanceolate, closely adpressed to the stem, as long as the flower-bracts and hirsute like them. *Flower-bracts* lanceolate or oblanceolate, tapering to each end, .25 to .3 in. long. *Flowers* 1 to 3, sessile. *Calyx* .2 in. long, cleft to the base into 4 lanceolate acuminate hirsute lobes. *Corolla* shorter than the calyx, narrowly campanulate, with 4 short lobes, densely hirsute outside, but glabrous within. *Anthers* 4, oblong, sessile. *Fruit* (fide Jack) "ovoid, hairy, dark-blue, pyrenes 4." Wight in Calc. Journ. Nat. Hist. VI. 504; Hook. fil. Fl. Br. Ind. III. 181. *Mephitidia attenuata*, DC. Prod. IV. 452.

MALACCA: *Griffith* (K.D.) 2926. PERAK: *King's Collector* 237, SINGAPORE: *Ridley* 6517, 6830, 9224.

Allied to *L. appressus*, Hook. fil., but with different pubescence and bracts and rather more nerves in the leaves.

21. *LASIANTHUS DENSIFOLIUS*, Miq. Fl. Ind. Bat. II. 321. A shrub; all parts more or less clothed with coarse flexuose pale-olivaceous hairs with bulbous bases. Young branches slightly thicker than a crow-quill. *Leaves* membranous, nearly sessile, narrowly oblong-lanceolate, somewhat oblique and emarginate, but not narrowed at the base, the apex shortly acuminate; both surfaces olivaceous-brown when dry; main-nerves 8 to 10 pairs, ascending, slightly curved, thin but prominent on the lower surface, faint on the upper; length 1.75 to 2.75 in.; breadth .6 to .8 in.; petioles under .1 in.; stipules lanceolate, densely hirsute, .25 to .3 in. long. *Cymes* axillary, sessile, few-flowered, rather more than twice as long as the petioles; bracts linear, hispid. *Flowers* few, sessile. *Calyx* .2 in. long, with 4 or 5 deep very unequal, lanceolate hispid lobes. *Corolla* much smaller than the calyx with oblong and less hairy lobes. *Anthers* 5, sessile, oblong, opposite the lobes. *Fruit* blue, sub-globular, sparsely hispid, surmounted by the calyx-lobes, .2 or .25 in. in diam.; pyrenes 4. Hook. fil. Fl. Br. Ind. III. 182. *Lasianthus*? Wall. Cat. 8441 in part.

This is very closely allied to the Indian species *L. Wallichii*, Wight.

MALACCA: *Maingay* (K.D.) 868. JOHORE: *King*. SINGAPORE: *Wallich*; *Anderson* 88; *Morton* 142; *Ridley* 4898, 5679. SELANGOR: *Ridley* 7421.

VAR. *latifolia*, King. *Leaves* broadly oblong with a short broad abrupt acumen, the base broad, oblique, sub-cordate, and more than 1 in. broad; young branches and inflorescence densely covered with coarse hair, 2.25 in. long.

JOHORE: *Ridley* 10948. SELANGOR: *Ridley* 7423.

VAR. *calycina*, King. *Leaves* glabrous on the upper surface except

for a very few scattered adpressed hairs and for the strigose midrib; main-nerves not more than 8 pairs; fruit crowned by calyx-lobes as long as itself.

SINGAPORE: *Ridley* 5679.

22. *LASIANTHUS ROBUSTUS*, King & Gamble, n. sp. Young branches terete, sub-glabrous, about as thick as a goose-quill. Leaves large, coriaceous, pale-olivaceous on both surfaces (when dry) and glabrous, oblanceolate, much narrowed but not acute at the base; upper surface corrugated from the depression of the nerves and veins, the midrib thin but prominent; under surface with bold large reticulations and stout midrib, the 16 to 20 pairs of curved ascending main-nerves thin but prominent length 8 to 12 in.; breadth 2.5 to 3.25 in.; petioles .4 in., stout, channelled; stipules coriaceous, sagittate, pale, about .4 in. long (measured to the end of the basal lobes). Cymes shorter than the petioles, condensed, ebracteate, few-flowered. Calyx shortly campanulate, glabrous, about .1 in. long, the mouth with 5 or 6 obscure teeth. Corolla unknown. Fruit sub-globular, 6-ridged, glabrous, crowned by the short calyx-tube, .15 in. in diam., pyrenes 5 or 6.

MALACCA: (at Ayar Pannas) *Ridley* (without number).

Only a single specimen seen by me, and that a poor one.

23. *LASIANTHUS CORIACEUS*, King & Gamble, n. sp. A small foetid shrub; young branches terete or somewhat compressed, minutely puberulous, the bark thick, pale and rugulose when dry. Leaves very coriaceous, oblong-elliptic, gradually and bluntly acuminate, the base cuneate; upper surface pale-brown when dry, everywhere glabrous, shining, the stout midrib and the main-nerves depressed; lower surface pale cinereous-brown, glabrous, dull; the midrib very stout and prominent; main-nerves 10 to 12 pairs, spreading but also ascending, ultimately glabrous, but like the midrib at first minutely adpressed, puberulous; intermediate nerves none, reticulations wide and indistinct; length 7 to 11 in.; breadth 2.5 to 3.5 in.; petiole about .4 in. stout, channelled; stipules triangular acuminate, half as long as the petioles. Cymes axillary, rather longer than the petioles, on short peduncles, ebracteate, bearing 3 to 5 sessile flowers. Calyx .15 in. long, widely tubular, truncate. Corolla unknown. Fruit (fide *Scortechini*) deep purple, .25 in. in diam., minutely hairy, crowned by the truncate, entire or faintly 4-toothed calyx-limb; pyrenes 4.

PERAK: *Scortechini* 332. SELANGOR: *Ridley* 10217, 8540 in part.

This is very like *L. pergamaceus* K. & G., which however is a tree with very thick leaves indistinctly veined.

24. *LASIANTHUS PERGAMACEUS*, King & Gamble, n. sp. A tree; young

branches, under surfaces of leaves, and outside of calyx and corolla minutely but deciduously puberulous; all other parts except the corolla quite glabrous. *Leaves* thinly coriaceous, oblong-elliptic, shortly and rather bluntly acuminate, the base cuneate; both surfaces pale hepatic-brown when dry and reticulate, the upper in all stages quite glabrous, the lower ultimately becoming so; the midrib very bold on the lower, less so in the upper surface; main-nerves 10 pairs, thin but distinct, spreading and ascending, many of the intermediate nerves prominent and spreading like the main ones, the reticulating veins delicate and forming square or rhomboidal areolae; length 8 to 10 in.; breadth 2 to 2.75 in.; petiole .3 to .4 in.; stipules .15 in. long with broad bases and abrupt oblong points. *Cymes* not much exceeding the petioles, ebracteate, 4- or 5-flowered, shortly pedunculate. *Flowers* .5 in. long, sessile. *Calyx* .25 in. long, tubular, the mouth truncate but obscurely toothed. *Corolla* much longer than the calyx, tubular, sub-inflated below the broadly 4-toothed limb, thick (almost fleshy), coarsely pubescent on one side externally, more or less villous everywhere internally. *Anthers* 4, narrowly oblong, on short thick filaments. *Fruit* unknown.

PERAK: at an elevation of 4500 feet on Gunong Batu Pateh, Wray 270.

Mr. Wray describes the whole plant as very foetid when bruised.

25. *LASIANTHUS MALACCENSIS*, King & Gamble, n. sp. A small tree; young branches twice as thick as a crow-quill, terete, puberulous, very dark in colour when dry. *Leaves* coriaceous, oblong-lanceolate, bluntly acuminate, the base rounded but slightly contracted just above its junction with the petiole; the edges somewhat wavy; both surfaces glabrous except for a few minute adpressed hairs on the midrib and nerves, dark olivaceous-brown, reticulate when dry; main-nerves 8 or 9 pairs, curved, ascending abruptly, thin and inconspicuous; length 4 to 5 in.; breadth 1 to 1.4 in.; petiole .3 in. *Stipules* much shorter than the petioles, the base broad, abruptly narrowed into the triangular apex. *Flowers* two or three together in the leaf-axils. *Calyx* sessile, campanulate, tapering to the base, less than .1 in. long, puberulous outside the mouth, wide and minutely 5-toothed. *Fruit* sub-globular, pulpy, surmounted by the 5 or 6 blunt short calyx-teeth, .2 in. in diam.; pyrenes 4, narrow, smooth.

MALACCA: Ridley 3219.

26. *LASIANTHUS CHINENSIS*, Benth. Fl. Hongkong 160. A shrub 8 to 12 feet high; young branches rather thinner than a goose-quill, angled, the bark dark-brown when dry, sparsely and minutely adpressed-pubescent. *Leaves* dark olivaceous-brown when dry, thinly coriaceous, elliptic-

oblong, shortly acuminate, narrowed to the base; surface reticulate, glabrous, except for a few adpressed hairs near the base, and on the midrib and longer nerves; main-nerves 8 or 9 pairs, thin, prominent on the lower surface, slightly curved, ascending; length 5 to 6·5 in., breadth 1·5 to 2 in.; petiole stout, adpressed rusty-pubescent, about ·15 in. long; stipules triangular, shorter than the petioles. *Cyme*, ebracteate, axillary, few-flowered, sessile, about twice as long as the petioles. *Flowers* 4 in. long, on pedicels much shorter than themselves. *Calyx* adpressed-pubescent, campanulate, deeply divided into 4 or 5 somewhat spreading, lanceolate, acuminate lobes. *Corolla* glabrous outside, longer than the calyx, salver-shaped; the tube densely pilose inside; the lobes oblong, thickened at their apices, reflexed. *Filaments* about as long as the 5 or 6 linear anthers. *Fruit* unknown. Hook. fil. Fl. Br. Ind. III. 187.

PERAK: *King's Collector* 2582, 10100.

The collector, in his field-note, describes the corolla as white and the calyx as blue.

27. *LASIANTHUS WIGHTIANUS*, Hook. fil. Fl. Br. Ind. III. 188. A shrub? Young branches compressed, varying in thickness, some as thick as a goose-quill, all as well as the petioles, the backs of the stipules, the under-surfaces of the main-nerves, and both sides of the midrib of the leaves minutely rusty adpressed-pubescent. *Leaves* dark-brown when dry, elliptic-oblong, the apex shortly acuminate, the base rounded, rarely sub-acute; upper-surface finely reticulate, the veins and nerves sparsely strigose; under-surface strongly reticulate, the veins and nerves pubescent; main-nerves 10 to 13 pairs, very prominent, curved, spreading; length 3·5 to 4·25 in.; breadth 1·25 to 1·5 in., petioles ·1 to ·15 in.; stipules triangular, acuminate, as long as the petioles. *Cymes* slightly longer than the petioles, few-flowered, ebracteate. *Flowers* clustered, sub-sessile. *Calyx* pubescent, 1 in. long, narrowly campanulate, with 5 small triangular spreading teeth. *Corolla* and *fruit* unknown. *Mephitidea venosa*, Wight in Calc. Journ. Nat. Hist. VI. 514; not of Blume.

MALACCA: on Mount Ophir, *Griffith* (K.D.) 2922.

28. *LASIANTHUS PTEROSPERMUS*, Wight in Calc. Journ. Nat. Hist. VI. 510. A shrub; young branches half as thick as a goose-quill, compressed especially at the nodes, strigose-puberulous, becoming sub-glabrous. *Leaves* coriaceous, elliptic or oblong-elliptic, shortly and bluntly acuminate or sub-acute, narrowed to the slightly oblique, rarely sub-acute, base; both surfaces when dry reticulate, pale-brown, tinged with olivaceous, the upper glabrous, the lower minutely substrigose

the midrib and main-nerves depressed on the upper surface (when dry); main-nerves 10 to 12 pairs, spreading, ascending, prominent on the lower surface; length 5 to 7 in.; breadth 1·25 to 2·25 in.; petioles ·2 to ·25 in.; stipules oblong-lanceolate, blunt, strigose, ·35 in. long. *Cymes* only slightly longer than the petioles, 3- to 4-flowered. *Flowers* sessile, with a few minute bracts or without any. *Calyx* sessile, ·15 in. long, strigose, the limb with 5 short obtuse triangular teeth. *Corolla*, globose, glabrous. *Drupe* sub-globose, ·5 in. in diam. when fresh, only ·3 in. when dry, glabrous, black, crowned by the shortly tubular calyx-limb; pyrenes 4 to 5, trigonous, bisulcate on the back and with 3 vertical processes, the middle one thick and rugulose, the two lateral thin and wing-like.

MALACCA: *Griffith* (K.D.) 2929; *Maingay* (K.D.) 866.

29. *LASIANTHUS PERAKENSIS*, King & Gamble, n. sp. A shrub or small tree; young branches half as thick as a goose-quill, deciduously and minutely rusty-puberulous like the petioles, stipules and under surfaces of the midrib and main-nerves. *Leaves* thinly coriaceous, narrowly elliptic or obovate-elliptic, abruptly and shortly acuminate, narrowed in the lower third to the short petiole; upper surface dark-olivaceous, quite glabrous, shining, the midrib and nerves not prominent; under surface paler olivaceous, glabrous except the puberulous midrib and 7 or 8 pairs of prominent ascending, little-curved main-nerves; the veins very bold, transverse; length 6 to 10 in.; breadth 1·75 to 3·25 in, petiole ·2 to ·25 in.; stipules triangular, acute, shorter than the petioles, adpressed to the stem. *Glomeruli* about as long as the petioles, condensed, ebracteate or with a few small linear hairy bracts shorter than the calyx. *Flowers* sessile, crowded. *Calyx* campanulate, much tapered to the base, the mouth wide and with 5 indistinct blunt, spreading lobes, pubescent. *Corolla* not seen; ovary 5-celled. *Fruit* hemispheric, sub-glabrous, ribbed, crowned by the calyx; pyrenes 5.

PERAK: *King's Collector* 682, 2438, 2838, 10210; *Wray* 4128.

Resembling *L. Maingayi* in leaves but with 5-merous flowers.

30. *LASIANTHUS ANGUSTIFOLIUS*, King & Gamble, n. sp. Small tree; young branches covered with a thin dense layer of adpressed minute pale-brown tomentum. *Leaves* thickly membranous, narrowly oblong-lanceolate, caudate-acuminate, the base cuneate; both surfaces brown when dry; the upper the darker, glabrous except the tomentose midrib; the lower glabrous except the pubescent midrib and nerves; the reticulations transverse strong on the lower surface, faint on the upper; main-nerves 12 to 14 pairs, slightly curved, ascending, thin but distinct on the lower, indistinct on the upper surface; length 5 or 6 in.; breadth

.6 to .75 in.; petiole .15 in.; stipules lanceolate, much shorter than the petioles, their edges ciliate. *Cymes* axillary, 2- to 3-flowered, ebracteate, sessile, shorter than the petioles. *Flowers* about .2 in. long, sessile. *Calyx* adpressed pubescent on both surfaces, tubular-campanulate, with 5 triangular-acuminate, slightly spreading teeth. *Corolla* slightly longer than the calyx, tubular, slightly inflated below the mouth; lobes 5, lanceolate, acuminate, sub-erect; the tube glabrous on both surfaces and the teeth adpressed-pubescent on both. *Anthers* small, narrowly oblong. *Fruit* ovoid-globular, crowned by the spreading calyx-lobes, about .2 in. long; pyrenes 4 or 5, rugulose.

PERAK: on Gunong Batu Patch at 4500 feet, *Wray* 413.

31. *LASIANTHUS OBLONGUS*, King & Gamble, n. sp. Young branches slightly thicker than a crow-quill, somewhat angled, densely but very minutely adpressed-pubescent. *Leaves* membranous, narrowly oblong-lanceolate, gradually tapering into the caudate-acuminate apex, the base much narrowed; both surfaces dark dull-brown when dry, minutely scaly, puberulous on the nerves and midribs, obscurely transverse-reticulate; main-nerves about 7 pairs, curved upwards, not conspicuous; length 3 to 5 in.; breadth .6 to 1 in.; petiole .15 to .2 in.; adpressed-puberulous. *Stipules* lanceolate-acuminate, about .1 in. long. *Cymes* ebracteate, axillary, sessile, 5- to 7-flowered, twice as long as the petioles. *Flowers* .35 in. long, on very short pedicels, adpressed-puberulous or glabrous. *Calyx* campanulate, shallow, the mouth wide, truncate, entire. *Corolla* more than twice as long as the calyx, salver-shaped; the tube slightly widened near the mouth; the limb densely hirsute on its upper surface, the lobes 5, oblong, obtuse. *Anthers* 5, oblong, sub-acute, on short filaments. *Fruit* depressed-globular, about .2 in. in diam. when dry, glabrous, 7- or 8-ridged, somewhat corrugated, crowned by the small calyx; pyrenes 7 or 8, each with a transverse septum dividing it into two cells, the outer of which is 1-seeded, the inner empty.

PERAK: *Scortechini* 265; *Ridley* 4935, 9702, 9729; *Wray* 2590; *King's Collector* 402, 4128, 4462, 10082; *Curtis* 2018. SELANGOR: *Ridley* 7438.

This closely resembles a specimen in Herb. Kew (Horsfield Rub. 52) doubtfully named *Lasianthus sylvestris* Miq., but in that the calyx has 5 distinct triangular acute teeth.

32. *LASIANTHUS MONTANUS*, King & Gamble, n. sp. A bush 4 to 8 feet high; young branches slightly thicker than a crow-quill, rather minutely adpressed-pilose like the stipules. *Leaves* thickly sub-coriaceous, ovate-lanceolate, shortly acuminate, the base cuneate; both

surfaces olivaceous, somewhat shining, reticulate, the upper quite glabrous, the lower pubescent on the bold midrib and thin but prominent 5 or 6 pairs of curved ascending main-nerves, sometimes also on the transverse veins; length 3 to 4.5 in.; breadth 1 to 1.5 in.; petioles .1 to .15 in., stout, stipules about .15 in. long, pubescent, adpressed to the stem, triangular-acuminate. *Flowers* solitary or in pairs, about .5 in. long, ebracteate. *Calyx* nearly as long as the corolla with a short tube and 5 long unequal linear-lanceolate pubescent lobes. *Corolla* white, salver-shaped; the tube long and narrow, pubescent on both surfaces, but especially inside near the base; lobes broad, spreading, somewhat irregular, with tufts of long hair near their apices. *Anthers* 5, short, subsessile near the base of the tube. *Fruit* unknown.

PERAK: at elevations of 3000 to 4000 feet, Wray 3932; King's Collector 2156.

33. *LASIANTHUS CURTISII*, King & Gamble, n. sp. A shrub; young branches somewhat thicker than a crow-quill, sparsely and deciduously pubescent, ultimately glabrous. *Leaves* thickly membranous, olivaceous-brown when dry, lanceolate or elliptic-lanceolate, much acuminate, the base slightly cuneate; upper surface quite glabrous; lower minutely and softly pubescent on the midrib, bold transverse veins and 4 to 6 pairs of stout spreading ascending curved main-nerves; length 2.5 to 3.5 in.; breadth .35 to 1.25 in.; petioles .15 to .2 in., very pubescent; stipules triangular, adpressed to the stem, hirsute, under .1 in. long. *Cymes* not much longer than the petioles, axillary, sessile, 6- to 8-flowered, ebracteate. *Flowers* sessile, .15 to .2 in. long. *Calyx* cleft to nearly the base into 5 sub-equal, linear-lanceolate sub-erect lobes, hirsute externally. *Corolla* much shorter than the calyx, its upper part with dense long yellow hair; lobes 5, short, blunt. *Anthers* 5, sessile, oblong, blunt. *Fruit* ovoid-globular, sparsely pilose, .1 in. long but crowned by the equally long, persistent calyx-lobes; pyrenes 5, broad, 3-angled.

PENANG: *Curtis* 284, 9355.

34. *LASIANTHUS PSEUDO-LUCIDUS*, King, n. sp. A bush; young branches slender, densely and minutely tawny-tomentose. *Leaves* thinly coriaceous, narrowly elliptic-lanceolate, acuminate, the base cuneate, both surfaces pale olivaceous-brown when dry, the upper glabrous; the lower darker, reticulate, puberulous on the midrib and nerves; main-nerves 6 or 7 pairs curved, ascending, distinct on the lower surface; length 2 to 2.5 in.; breadth .6 to .75 in.; petiole about .1 in., pubescent; stipules narrowly oblong-lanceolate, tomentose, .4 in. long. *Cymes* twice as long as the petioles, on short tomentose peduncles, 3- to 4-flowered. *Flowers* sessile. *Calyx* campanulate, .25 in. long, deeply

divided into 5 slightly unequal, linear-lanceolate lobes, hirsute on both surfaces. *Corolla* and fruit not seen.

PERAK: at 5000 feet, *Wray* 4109.

A species near *L. lucidus*, Blume (not of Hook. fil. in Fl. Br. Ind.), but differing from that species in its thicker, less acuminate and rather fewer-nerved leaves, and thicker twigs which are moreover tomentose instead of glabrous. The calyx of this is moreover hirsute instead of glabrous.

35. *LASIANTHUS NERVOSUS*, King & Gamble, n. sp. A small dense shrub 2 to 3 feet high; young branches and petioles covered with dense short olivaceous tomentum. *Leaves* coriaceous, deep olivaceous-brown when dry, shining and minutely reticulate, oblong-lanceolate, the apex acute or sub-acute and mucronate, the base sub-cuneate; upper surface glabrous, the midrib depressed; lower slightly paler, the stout midrib and 6 to 8 pairs of prominent curved ascending nerves minutely adpressed-pubescent; length 1 to 1.5 in.; breadth .4 to .6 in.; petioles .1 to .15 in. long; stipules triangular, much shorter than the petioles, pubescent, caducous. *Cymes* sessile, while in flower shorter than the petioles, 3-flowered. *Flowers* sessile, about .15 in. long. *Calyx* cupular, very short, with 4 triangular teeth. *Corolla* longer than the calyx (about .1 in. long), the tube cylindric, hairy, white; the lobes 4, short, with moniliform hairs inside. *Anthers* attached to the middle of the tube. *Style* shortly bifid. *Berry* bluish, sparsely hairy, globular, .15 in. in diam., crowned by the calyx-teeth; pyrenes 4.

PERAK: *Scortechini* 342.

36. *LASIANTHUS HARVEYANUS*, King & Gamble, n. sp. A shrub; young branches rather thicker than a crow-quill, minutely rusty-tomentose like the petioles and midribs of the leaves on both surfaces. *Leaves* membranous, elliptic or ovate-elliptic, (oblong-elliptic in var.); narrowed to the rather blunt (acuminate in var.) apex, the base rounded; both surfaces pale-brown when dry; the upper scaberulous and with a few scattered adpressed hairs near the edges; lower surface scabrid-puberulous between the 4- to 6 (8 to 10 in. var.) pairs of slender little-curved ascending minutely pubescent main-nerves; length 4 to 5 in. (up to 7.5 in. var.) breadth 1.65 to 2 in.; petioles .15 to .2 in.; stipules triangular, acute, one-third or one-half as long as the petioles. *Cymes* longer than the petioles, ebracteate, 3- to 5-flowered. *Flowers* .3 in. long, sessile. *Calyx* under .1 in. in length, narrowly campanulate, densely pubescent, the mouth 4-toothed. *Corolla* both outside and inside less pubescent than the calyx, funnel-shaped; the mouth with 4 ovate and acute spreading lobes. *Anthers* 4, narrowly oblong, shortly apiculate, exserted, attached by short filaments to the densely villous throat; style elongate; stigmas 2 or 3, hairy. *Fruit* unknown.

PERAK: at an elevation of 3400 feet, *Wray* 444.

VAR. longifolia. *Leaves* elliptic-oblong, shortly acuminate, as much as 7·5 in. long, with 8 to 10 pairs of nerves.

MALACCA: *Harvey*.

37. *LASIANTHUS FERRUGINEUS*, King & Gamble, n. sp. A bush; young branches about half as thick as a goose-quill, rusty-lanate like the outside of the stipules, the petioles and both sides of the leaf-midribs. *Leaves* dark-brown when dry, thinly coriaceous, oblong-lanceolate, much acuminate, the base rounded or sub-cuneate; upper surface reticulate, sparsely covered with stiff flexuose hairs with conspicuous black bulbs at their bases, shining, the nerves thin but distinct; lower surface more densely hairy (the hairs with smaller bulbs), especially dense on the 16 to 18 pairs of bold curved spreading main-nerves; length 5 or 6 in.; breadth 1·25 to 1·5 in.; petioles ·15 to ·2 in.; stipules triangular, sub-acute, longer than the petioles, deciduous. *Cymes* small, not so long as the petioles, few-flowered, ebracteate. *Flowers* on short hirsute pedicels. *Calyx* ·25 in. long, tubular-campanulate, densely hirsute like the corolla, deeply divided into 5 lanceolate acuminate sub-equal lobes. *Corolla* like the calyx but only half as long, white. *Disk* smooth, glabrous, orbicular. *Style* short, glabrous. *Fruit* unknown.

PERAK: at an elevation of 4500 feet; *Wray* 3911.

38. *LASIANTHUS TOMENTOSUS*, Blume Bijdr. 997. A shrub? Young branches varying in thickness, the longer nearly as thick as a goose-quill, densely clothed like the petioles and stipules with dense short rusty tomentum. *Leaves* thickly membranous, oblong-lanceolate, acuminate, the base cuneate or rounded; upper surface blackish-olivaceous when dry, sparsely and minutely strigose; the lower paler, shortly olivaceous-pilose except the 7 to 10 pairs of curved ascending nerves on their lower surfaces, and the bold midrib on both, which are tomentose; length 2·5 to 3·5 in.; breadth ·5 to 1 in.; petiole ·1 to ·2 in.; stipules about as long as the petioles, triangular. *Cymes* when in flower twice as long as the petioles, when not in flower shorter, condensed, few-flowered, ebracteate, sessile. *Flowers* ·2 in. long, sessile. *Calyx* under ·1 in. long, widely campanulate, hirsute, the mouth sub-truncate, obscurely toothed. *Corolla* salver-shaped; the tube wide, glabrous outside and inside but with a band of stout hairs at the throat; lobes of the limb ovate, sub-acute, sub-erect, sparsely hirsute. *Anthers* 5, ovate-oblong, on short filaments, curving inward, and cohering by their margins and tips. *Style* as long as the tube of the corolla, cylindric, divided into 2 compressed arms. *Ovary* 5-celled, with a single ovule in each.

PERAK: *Yapp* 525. JOHORE: *Ridley* 11181, 11182, 4083.

This resembles No. 17, but has its leaves hairy on the upper surface, thicker young branches and a much wider corolla-tube.

39. *LASIANTHUS SCALARIFORMIS*, King & Gamble, n. sp. A shrub 5 or 6 feet high; young branches thinner than a goose-quill, minutely rusty-puberulous, faintly ridged, dark-coloured when dry. *Leaves* coriaceous, narrowly elliptic-oblong, the apex very shortly acuminate or acute, much narrowed to the base; both surfaces dark olivaceous-brown when dry, glabrous, shining, the veins scalariform, horizontal, close together, very distinct especially on the lower surface, the midrib thin on the upper surface, stout, convex and often faintly puberulous on the lower surface; main-nerves 7 or 8 pairs, little curved, ascending, broad, bold, and when young, minutely puberulous on the lower surface, always faint and glabrous on the upper; length 4 to 5 in.; breadth 1.25 to 1.5 in.; petioles .25 to .3 in.; stipules minute (about .05 in. long) triangular, with broad bases. *Peduncle* solitary, ebracteate, glabrous, about .5 in. long, bearing at its apex a 3- to 5-flowered cyme. *Flowers* sessile. *Calyx* .2 in. long, campanulate, deeply divided into 5 narrowly oblong acute lobes very minutely puberulous. *Corolla* not seen. *Fruit* glabrous, obovoid, 5-ridged; pyrenes 5.

PERAK: *Scortechini* 411; *Wray*, at an elevation of 6700 feet, 332.

40. *LASIANTHUS FILIFORMIS*, King & Gamble, n. sp. A slender shrub 2 to 4 feet high; young branches rather thicker than a crow-quill, clothed like the other parts of the plant with long spreading rather slender hairs. *Leaves* membranous, subsessile, oblong-lanceolate, shortly acuminate; the base rounded, slightly unequal and minutely caudate, both surfaces olivaceous-brown when dry (sometimes pale), dull, more or less hispidulous-pubescent especially on the midrib and main-nerves; the upper when old sometimes almost glabrous; main-nerves 7 to 9 pairs, thin, but pale and rather conspicuous on the lower surface (when dry), inconspicuous on the upper; length 2 to 2.75 in.; breadth .65 to 1 in.; petiole under .1 in. or almost absent; stipules linear-lanceolate, pubescent, .2 or .25 in. long. *Inflorescence* a slender solitary filiform, sparsely pubescent peduncle .75 to 1 in. long, bearing at its apex one or at most two, flowers subtended by a single or double linear bracteole (by two large leaf-like bracts in var. *bracteata*). *Calyx* with a campanulate tube .1 in. long, and 4 linear-lanceolate erect lobes longer than itself. *Corolla* tubular, exceeding the calyx-lobes, white hairy, deeply 4-lobed. *Ovary* 8-celled. *Fruit* baccate, blue, .25 in. in diam., crowned by the long persistent calyx-lobes.

PERAK: *Scortechini* 29; *King's Collector* 851.

VAR. *bracteata*. Flowers subtended by two ovate acute leaf-like bracts from .3 to .5 in. long.

PERAK: *Scortechini* 180, 190; *Ridley* 8578.

41. *LASIANTHUS GRACILIS*, King & Gamble, n. sp. A slender shrub 2 to 3 feet high, young branches as thick as or thinner than a crow-quill, like the petioles and sometimes the under-surfaces of the midribs densely adpressed-pubescent. *Leaves* stiffly membranous, ovate or sub-rhomboidal, the apex acute and minutely apiculate; the base cuneate, sometimes slightly unequal; both surfaces usually glabrous; the 7 to 9 pairs of main-nerves spreading, little curved, pale and conspicuous beneath; length .6 to .75 in.; breadth .35 to .5 in.; petiole under .1 in.; stipules as long as the petioles, caducous. *Inflorescence* a filiform hairy peduncle shorter than the leaves, bearing at its apex 1 or 2 minute bracteoles and (*vide* *Scortechini*) 1 to 3 flowers. *Fruit* depressed-globular, glabrous, shining, .15 in. in diam. with 4 vertical ridges; pyrenes 4.

PERAK: *Scortechini* 39, 617. *Ridley* (in tea gardens) 2904.

42. *LASIANTHUS MAINGAYI*, Hook. fil. Fl. Br. Ind. III. 188. A large shrub or small tree; young branches much thinner than a goose-quill, somewhat compressed, covered with deciduous minute rather stiff rusty hairs or sub glabrous. *Leaves* thickly membranous, large, sub-coriaceous, pale-brown, often tinged with olivaceous when dry, narrowly elliptic or sub-obovate-elliptic, shortly and abruptly acuminate; upper surface quite glabrous, shining, the midrib and main-nerves and also the reticulations rather prominent when dry; lower surface rather rough from the bold pale transverse veins; main-nerves 5 or 6 pairs, slightly curved, ascending, thin but prominent; the midrib stout, glabrous or with a few minute hairs; length 5.5 to 8.5 in.; breadth 1.75 to 3 in.; petiole .2 to .3 in.; stipules, lanceolate, acuminate, the base broad, shorter than the petioles, pubescent, deciduous. *Glomeruli* lobulate, shorter than the petioles, sessile ebracteate, the flowers crowded on 2 or 3 short thick branches. *Flowers* about .15 in. long, on very short pedicels, puberulous. *Calyx* about as long as the corolla, campanulate, constricted somewhat below the three blunt or acute triangular teeth. *Corolla* tubular with 3 sub-acute triangular teeth. *Anthers* 3, broadly oblong, emarginate at the apex. *Ovary* 3-celled, style cylindric. *Fruit* obliquely elliptic, crowned by the small calyx; pyrenes 3, rugulose.

MALACCA: *Maingay* (K.D.) 871. SINGAPORE: *Ridley* 10737; *King* 89; *Hullett* 528. JOHORE: *Ridley* 6516, 11185, 11186, 11187. SELANGOR: *Ridley* 4895. PERAK: *Scortechini*, 678; *King's Collector* 2964.

This resembles No. 13, but is trimerous, its cymes have thick branches and are ebracteate, and its young stems and leaves are glabrous or nearly so.

43. *LASIANTHUS LUCIDUS*, King & Gamble, n. sp. A glabrous foetid shrub; young branches rather thicker than a crow-quill, somewhat compressed, especially at the nodes. *Leaves* thinly coriaceous, oblong-

elliptic or lanceolate, the apex caudate-acuminate, the base much narrowed, both surfaces pale-brown when dry, shining, reticulate; main-nerves 7 to 10 pairs, thin, spreading, interarching $\cdot 15$ in. from the edges, the secondary nerves almost as prominent; length $3\cdot 5$ to 6 in.; breadth $1\cdot 15$ to $1\cdot 8$ in.; petiole $\cdot 15$ to $\cdot 2$ in. or $\cdot 25$ in., slender; stipules minute triangular, much shorter than the petioles. *Cymes* sessile, 4- to 8-flowered, ebracteate. *Flowers* $\cdot 25$ in. long, on short pedicels, narrow, erect. *Calyx* tubular, with 3 broad teeth much shorter than the corolla, glabrous. *Corolla* narrowly tubular, with 3 long narrow-ovate lobes, hairy inside except at the tip. *Anthers* 3, erect, narrowly oblong, not quite so long as their filaments. *Ovary* 3-celled; style long, slender, clavate. *Fruit* sub-trigonal, or sub-didymous, depressed, $\cdot 2$ to $\cdot 35$ in. in diam., shining, blue; pyrenes 2 or 3, oblique sub-pyriform, smooth, each divided into 2 cells by a transverse septum, the anterior cell empty. *Seeds* concave, cupped, fleshy.

PERAK: *Scortechini* 264, 463; *King's Collector* 788, 2797, 2840, 5051; *Ridley* 2928, 5549, 7437, 8574; *Wray* 426, 973, 2807, 3931.

52. CHASALIA, Commers.

Characters of *Psychotria* except that the corolla-tube is slender and in one species is usually curved, and the seeds are orbicular plano-concave, the dorsal surface being flat and the anterior deeply concave; almost cupped, albumen uniform.—DISTRIB. About 10 species, tropical Asiatic and African.

In our opinion this genus might with advantage be reduced to *Psychotria*.

Flowers sessile, from $\cdot 5$ to 1 in. long; corolla-tube slender,

curved ... 1. *C. curviflora*.

Flowers pedicelled, $\cdot 15$ in. long; corolla-tube wide, straight 2. *C. rostrata*.

1. *CHASALIA CURVIFLORA*, Thwaites Enum. Pl. Ceyl. 150, 421. A shrub 2 to 4 feet high; everywhere glabrous. Young branches woody, terete, glabrous, dark-coloured when dry. *Leaves* membranous, elliptic, oblong-elliptic, oblong or oblanceolate, shortly and somewhat abruptly and often bluntly acuminate, narrowed at the base; (narrowly elliptic or linear in vars.) upper surface olivaceous-brown when dry, the lower paler; main-nerves 5 or 6 pairs, much curved, spreading and ascending, thin but distinct on the lower surface like the wide reticulations; length 6 to 8 in.; breadth 1 to $2\cdot 75$ in.; petioles $\cdot 3$ to $\cdot 75$ in. *Stipules* coriaceous, campanulate-cupular, blunt, $\cdot 15$ to $\cdot 35$ in. deep, the upper edge truncate, entire or 2- or 3-cleft. *Cymes* solitary, terminal, from 1 to 2 in. long, and the same in diam., sometimes on naked peduncles $\cdot 5$ to $1\cdot 25$ in. or even more in length; branches divergent,

trichotomous, often short, few-flowered. *Flowers* sessile, from .5 to 1 in. long. *Calyx* only .15 in. long, campanulate, the mouth irregularly and shortly toothed. *Corolla* about four times as long as the calyx, the tube long and narrow; its 4 lobes not a quarter of its length, lanceolate, spreading. *Anthers* 4, linear-oblong, deeply cordate at the base, the filaments varying in length. *Style* also varying in length. *Fruit* pisiform, globose sometimes didymous, crowned by the small remains of the calyx, glabrous, pyrenes thin, each with one plano-convex seed. Kurz For. Flora Burma, II. 14; Miq. in Ann. Mus. Lugd. Bat. IV. 202; Hook fil. Fl. Br. Ind. III. 176; Trimen Flora Ceylon III. 363. *C. lurida*, *C. tetrandra*, Miq. Fl. Ind. Bat. 281, 282. *C. Sangiana*, Miq. Fl. Ind. Bat. Suppl. 546. *Psychotria lurida*, Bl. Bijdr. 959; DC. Prod. IV. 521. *P. curvifolia* and *P. ophioxylodes*, Wall. in Roxb. Fl. Ind. ed. Carey & Wall. II. 167, 168; Cat. 8360, 8364; DC. Prod. l.c. 520. *P. ambigua*, W. & A. Prod. 433; Wt. Ic. t. 127. *P. tetrandra*, BC. Bijdr. 961; DC. l.c. 521. *Zwaardekronia lurida*, Koeth, in Ned. Kruidk. Arch. II. 252. *Ixora attenuata*, Wall. Cat. 6164. *Psychotria*, Wall. Cat. 8361, 8362, 8363, 8364, 8375; (in part) 8386, 8390. *Rubiaceae*, Wall. Cat. 8461.

In all the provinces, common.

The corolla varies in length and is moreover dimorphous as regards the respective length of the stamens and pistils. As regards leaves the plant varies greatly. It seems necessary, however, to separate one Malayan variety.

VAR. *linearis* King & Gamble; leaves linear-oblong from 3.25 to 8.5 in. long, and from .35 to .65 in. in breadth.

MALACCA: Ridley 1359: Goodenough 1606.

2. *CHASALIA ROSTRATA*, Miq. in Ann. Mus. Lugd. Bat. IV. 203 excl. syn. *Psychotria tetrandra*. A slender glabrous shrub; young branches thicker than a crow-quill, compressed, pale. *Leaves* membranous, greenish when dry, elliptic or elliptic-oblong, the apex acuminate, the base usually much narrowed but sometimes rounded and oblique; both surfaces more or less distinctly fine-reticulate; main-nerves 5 or 6 pairs, curved, spreading, conspicuous beneath when dry; length 3 to 6 in.; breadth 1.5 to 2 in.; petiole .25 to .4 in.; stipules less than .1 in. long, connate into a short tube, the mouth with a few bristles. *Cymes* solitary, terminal, slender, from .75 to 2 in. long (including the peduncle); bracteoles few, broad, coriaceous; branches divergent, trichotomous, few-flowered. *Flowers* .15 in. long, on short pedicels. *Calyx* campanulate; the mouth oblique, irregularly 4- or 5-toothed. *Corolla*-tube wide, only slightly longer than the calyx; the limb about as long as the tube with 4 broad blunt spreading lobes. *Anthers* 3 or 4, ovate, as long as the filaments, included in the corolla-tube. *Fruit* ovoid, smooth, .25 in. long. Hook.

fl. Fl. Br. Ind. III. 177; Miq. Fl. Ind. Bat. II. 281. *Psychotria rostrata* Blume Bijdr. 961. *Polyozus latifolia* (fide Miquel) Bl. Bijdr., 948; DC. Prod. IV. 521, 494.

MALACCA: *Griffith* (K.D.) 3045; *Maingay* (K.D.) 937. JOHORE: *Ridley* 4092. SINGAPORE: *Ridley* 4890. SELANGOR: *Ridley* 7376. DINDINGS, *Ridley* 7992. PERAK: *Scortechini* 1482. *King's Collector* 2190.

We follow previous writers in putting this plant in the same genus as *Chasalia urviflora*, from which it differs in having a corolla with a short wide perfectly straight tube.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR JANUARY, 1904.

The Monthly General Meeting of the Society was held on Wednesday, the 6th January, 1904, at 9 P.M.

JOHN BATHGATE, Esq., in the chair.

The following members were present :—

Maulavi Abdul Wali, Mr. W. K. Dods, Babu Girindranath Dutt, Mr. D. Hooper, Kumar Ramessur Maliah, Dr. M. M. Masoom, Mr. W. H. Miles, Captain L. Rogers, I.M.S., Pandit Yogesa Chandra Sastree, Mahamahapadhyaya Haraprasad Shastri, Pandit Satis Chandra Vidyabhusan, Mr. E. Vredenburg, and Dr. C. R. Wilson.

Visitors :—Mr. T. E. Corrie, Mr. F. M. Lane, Babu Ganga Mohan Laskar, and Capt. H. W. R. Simor.

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The minutes of the last meeting were read and confirmed.

Forty-one presentations were announced.

Mr. Louis Stuart, Babu Harendra Krishna Mukerjee, Mr. V. H. Jackson, Pandit Gulab Shankar Dev Sarman, Babu Panna Lal, and Mr. R. P. Ashton, were ballotted for and elected Ordinary Members.

The Chairman announced :—

1. That Mr. Abdur Rahim and Nawab M. M. Hosein Khan, elected Members of the Society on the 6th and 27th August 1903, respectively, not having paid their entrance fees, their elections have become null and void under rule 9.

2. That he had received only one essay in competition for the Elliott Prize for Scientific Research for 1903.

The General Secretary reported the presentation of 7 silver coins from the Government of United Provinces of Agra and Oudh, found in Jaunpur, Kheri and Fatehgarh Districts.

The following papers were read :—

1. *On the Antiquity and traditions of Shāhzādpur.*—By MAULAVI ABDUL WALI.

(Abstract.)

The author brings together all that is known of the traditions and ancient remains of Shāhzādpur, in the Sirājganj subdivision of the Pubna district, and thence attempts to reach the underlying substratum of fact.

Shāhzādpur has a small brick mosque of ancient construction with 28 black basalt columns and door jambs of the same probably taken from some Hindu temple. South of the mosque are more than twenty tombs including the shrines of Makhdūm Šāhib, the martyr, of Khwājah Kalān Danishmand, his nephew, and of the darvish Shāh Yusuf. There are also two large burying places of martyrs. A fair is held annually near the mosque in April and May. Bokhāra pigeons are found round the mosque and in the neighbouring villages.

The tradition is that Makhdūm Shāh was the son of a king of Yaman in Arabia. With a large following, including his sister, three nephews, and twelve darvishes, he set out on a religious expedition for the spread of Islam. At Bokhāra they were given a few khākī coloured pigeons. At length they arrived in ships at Bengal which was then mostly under water. The pigeons discovered land near Shāhzādpur and Makhdūm Shāh and his followers took possession of it. In the conflict which followed between them and the Hindu rajah of the country most of the Moslems were martyred. Supernatural signs led the rajah to repent. He accordingly buried the martyrs with due solemnity and built the mosque.

The author points out that the king of Yaman whom the tradition calls the father of Makhdūm Shāh was a contemporary of the Prophet. His descendants may have emigrated to Trans-Oxania or Bokhāra. Makhdūm Šāhib, a member of the family, may have been contemporary with Nizāmu-d-din Auliya, may have come to Bengal about the time of its conquest by Muḥammad-i-Bakht-Yar, and may have fought and died as the tradition says. As his ancestor was a Shāhzāda, the place of his death received the name of Shāhzādpur.

2. *The method of preparing Calendars and fixing festival dates by the Hindus.*—By GERINDRANATH DUTT, Superintendent, Rāj Hatwā.

(Abstract.)

This note has been prepared in response to a circular letter from Mr. E. A. Gait, Superintendent of Ethnography in Bengal, asking for information regarding the rules by which astrologers of all classes prepare calendars and fix the dates of festivals. The author explains the well-known differences between Siddhāntas and Karaṇas, between the pūrṇimānta system of Northern India and the amānta system of Southern India, and between the luni-solar year by which religious festivals are calculated and the solar year which is the Bengali civil year. He gives formulæ according to the Karaṇas or practical works in use. He defines the principal Hindu festivals as reckoned by the lunar months. He contends that in the early Vedic age the new year was calculated from the sun's entering the Pleiades, and that the vernal equinox was at the Pleiades about B.C. 2500.

3. *Further notes on the Bhojpurī dialects spoken in Sāran and on the origin of Kaythī characters.*—By GERINDRANATH DUTT, Superintendent, Rāj Hatwā.

(Abstract.)

The author considers that the present Bōjpuri dialect is an admixture of the Kanauiyā dialect and the Māgadhi dialect, the latter being the predominant element. He contrasts the Gaṇḍak and the Gōgrā valleys physically and linguistically. The Gōgrā valley is fertile and busy; men speak quickly and their words get clipped and shortened. The Gaṇḍak valley is sandy, unhealthy and backward. The population is dull and stagnant, and dialectical changes are fewer and slower.

The author would derive the Kaythī character mainly from Aśoka's Pāli character, so that in modern Kaythī we have in a veiled form the most ancient characters of India.

4. *The Khurda copper plate grant of Mādhava, king of Kalinga.* By GANGA MOHAN LASKAR, M.A., Government Research Scholar. Communicated by MAHAMAHOPADHYAYA HARAPRASAD SHASTRĪ.

(Abstract.)

This set of three copper plates comes from Khurda in Orissa and forms the second record ever discovered of king Mādhava and of the Sailodhava dynasty from which he is sprung; the only other known record of this dynasty is a copper plate charter of the same king

Mādhava, found in the Baguḍa village of the Goomsur tāluk in the Ganjam district. Dr. Keilhorn gives an account of the Baguḍa plate in the *Epigraphia India*, Vol. III., p. 40.

The new record consists of three plates strung together by a ring, the ends of which are secured in a seal. The seal contains in relief the figure of a bull and the words, "Srē Sainyabhētasya" (*i.e.*, of the glorious Sainyabhēta.) All the plates are inscribed, the middle one on sides. The engraving is deep and legible.

The character of writing indicates that these plates cannot be later than the latter half of the seventh century. The plates enable us to revise the genealogy of the dynasty which stands thus :—

1. Sailodbhara, the founder.
 2. Raṇabhita, descended from 1.
 3. Sainyabhita I, son of 2.
 4. Yaśobhita I, descended from 3.
 5. Sainyabhita II, son of 4.
 6. Yaśobhita II, son of 5.
 7. Mādhavarāya, Mādhavendra, or Mādhava Varman, son of 6.
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LIBRARY.

THE following books have been added to the Library from September to December, 1903.

Abdur Rahman, *Amir of Afghanistan*. The life of Abdur Rahman, Amir of Afghanistan . . . Edited by Mir Munshi Sultan Mahomed Khan . . . With portrait, maps, and illustrations. 2 vols. *London*, 1900. 8°

Açvaghosha. Açvaghosha's discourse on the Awakening of Faith in the Mahāyāna . . . Translated . . . from the Chinese version by Teitaro Suzuki. *Chicago*, 1900. 8°

Agnivesa. [Caraka Samhita. Corrected . . . by Pandit Jivananda Vidyasagara.] *Calcutta*, 1896. 8°

Presd. by Dr. A. F. R. Hoernle.

Alcock (Surgeon-Major A.) A Naturalist in Indian Seas: or, Four years with the Royal Indian Marine Survey Ship "Investigator." [With plates.] *London*, 1902. 8°

Alexander (Neil) Gita and Gospel. *Calcutta*, 1903. 8°

Presd. by the Author.

ARCHÆOLOGICAL SURVEY, PUNJAB CIRCLE. Annual Progress Report. [Lahore, 1903.] fol.

In progress.

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ARCHÆOLOGY [Burma.] Report on Archaeological Work in Burma Rangoon. 1903. fol.

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Aston (W. G.) A History of Japanese Literature. *London*, 1899. 8°

*One of the "Short Histories of the Literatures of the World,"
edited by E. Gosse.*

- Avebury, Lord** [John Lubbock.] *The Origin of Civilisation and the Primitive Condition of Man. Mental and Social condition of Savages . . . Sixth edition, with . . . additions. [With illustrations.] London, 1902. 8°*
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- Pre-historic Times as illustrated by ancient remains and the manners and customs of modern savages . . . Sixth edition, revised. London, 1900. 8°*
- Baillie (Alexander F.)** *Oriental Club and Hanover Square . . . With . . . portraits and other illustrations. London, 1901. 4°*
- Bartlett (John)** *Familiar Quotations: being an attempt to trace to their source, passages, phrases in common use. Author's edition. London, [1900?] 8°*
- Bent (Theodore) and (Mrs. Theodore)** *Southern Arabia . . . With . . . maps and illustrations. London, 1900. 8°*
- Biddulph (Col. J.)** *Stringer Lawrence, the father of the Indian Army. London, 1901. 8°*
- Boulger (Demetrius C.)** *India in the Nineteenth Century. [With plates.] London, 1901. 8°*
- THE BRAHMA-MIMAMSA, with Srikantha-Sivacharya's commentary.
 Edited by L. Srinivasacharya. *Mysore, 1903. 8°*
Bibliotheca Sanskrita, No. 30.
Presd. by the Government Oriental Library, Mysore.
- Brewer (Rev. E. Cobban)** *The Readers' Handbook of famous names in fiction, allusions, references, proverbs, plots, stories, and poems . . . A new edition, revised. London, 1902. 8°*
- BRITISH EMPIRE SERIES. Vol. I. India, Ceylon, Straits Settlements, British Borneo, Hongkong. Vol. V. General. 2 vols. *London, 1899, 1902. 8°*
- Brown (W. B.)** *A Guide to the principal places of interest in Orissa. Cuttack, 1900. 8°*
- Bryan (Michael)** *Dictionary of Painters and Engravers, biographical and critical . . . New edition . . . enlarged, edited by R. E. Graves and Sir W. Armstrong. 2 vols. London, 1902. 8°*

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Part of the "Books on Egypt and Chaldaea" series.

Bury (J. B.) A History of Greece to the death of Alexander the Great . . . With maps, etc. 2 vols. *London*, 1902. 8°

THE CAMBRIDGE NATURAL HISTORY. Edited by S. F. Harmer . . . and A. E. Shipley. *London*, 1901, etc. 8°

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Cave (Henry W.) Golden Tips. A description of Ceylon and its great Tea Industry . . . Illustrated, etc. *London*, 1900. 8°

. . . The Ruined Cities of Ceylon . . . Illustrated . . . A new edition. *London*, 1900. 8°

Celli (Angelo) Malaria according to the new researches . . . Translated from the second Italian edition by J. J. Eyre . . . With an introduction by Dr. P. Manson . . . With maps and illustrations. New edition. *London*, 1901. 8°

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Godley (J. C.) A Record of the Aitchison College at Lahore, 1887-1901. With a list of former and present students, showing their parentage. *Lahore*, 1901. 4°

Gokale (G. K.) Treatment of Indians by the Boers, and the treatment of the low castes in India by their own countrymen. A speech, etc. *Madras*, 1903. 8°

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Presd. by Akad. der Wissenschaften zu Amsterdam.

Keane (A. H.) The Gold of Ophir, whence brought and by whom?
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of Travels. 2 vols. *London*, 1900. 8°

Knowles (Frederic Lawrence) A Kipling Primer, including bio-
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Lillingston (Frank) The Brahmo Samaj and Arya Samaj in their bearing upon Christianity. A study in Indian Theism. *London*, 1901. 8°

Lo Bianco (Dr. Salvatore) The Methods employed at the Naples Zoological station for the preservation of Marine Animals. *Washington*, 1899. 8°

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Mahan (Capt. A. T.) The Problem of Asia and its effect upon international policies. *London*, 1900. 8°

Manson (Patrick) Tropical Diseases. A Manual of the Diseases of warm climates . . . With . . . coloured plates. New and revised edition. *London*, 1903. 8°

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Merrill (George P.) Directions for Collecting Rocks and for the preparation of Thin sections. *Washington*, 1895. 8°

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Mumford (John Kimberly) Oriental Rugs. [With plates and maps.] *London*, 1901. 4°

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Rijnhart (Susie Carson) With the Tibetans in Tent and Temple.
Narrative of four years' residence on the Tibetan border, and of a
journey into the far interior. [With plates.] *Edinburgh*, 1901.
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a record of Agriculture and Land Settlements, Trade and Manufac-
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———. Famines and Land Assessments in India.
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Srisvar Vidyalkar. Dilli-Mahotsava-Kavyam. A Sanskrit Poem on the Delhi-Durbar in six cantos . . . Edited with . . . notes . . . by Kokilesvar Bhattacharyya Vidyaratna. With . . . portraits. [*Calcutta*,] 1903. 8°

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Thomson (Major George S.) and (Dr. John) A Treatise on Plague, etc. *London*, 1901. 8°

Thurston (Edgar) Monograph on the Ivory Carving Industry of Southern India. With . . . plates. *Madras*, 1901. fol.
Presd. by the Author.

THE TIMES ATLAS. New edition, etc. *London*, 1900. fol.

Townsend (Meredith) Asia and Europe. Studies presenting the conclusions formed by the author in a long life devoted to the subject of the relations between Asia and Europe. *Westminster*, 1901. 8°

'Umar Khayyām. The Ruba'iyat of Omar Khayyam. Translated by E. Fitzgerald. With a commentary by H. M. Batson and a biographical introduction by E. D. Ross. *London*, 1900. 8°

THE UNADA: or the Solemn Utterances of the Buddha. Translated from the Pali by Major-Genl. D. M. Strong. *London*, 1902. 8°

Watt (Sir George) and Mann (Harold H.) The Pests and Blights of Tea Plants. (Second edition.) *Calcutta*, 1903. 8°
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Wigram (Herbert) Malabar Law and Custom . . . Second edition, by L. Moore. *Madras*, 1901. 8°

Woodroffe (John George) The Law relating to Receivers in British India. *Calcutta*, 1903. 8°
Tagore Law Lectures, 1897.

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Yate (Major A. C.) Lieutenant-Colonel John Haughton, Commandant of the 36th Sikhs, a hero of Tirah. A memoir. *London*, 1900. 8°

Yate (Lieut.-Col. C. E.) Khurasan and Sistan . . . With map and illustrations. *Edinburgh*, 1900. 8°

- Young (Col. Keith)** Delhi 1857. The siege, assault, and capture, as given in the diary and correspondence of the late Col. K. Young . . . Edited by Gen. Sir H. W. Norman . . . and Mrs. K. Young with a memoir and introduction by Sir H. W. Norman. With illustrations and maps, *etc.* London, 1902. 8°
- Zittel (Karl Alfred von)** History of Geology and Palæontology to the end of the nineteenth century. Translated by Maria M. Ogilvie-Gordon. With portraits. London, 1901. 8°
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PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR FEBRUARY, 1904.

The Annual Meeting of the Society was held on Wednesday, the 3rd February, 1904, at 9-45 P.M.

H. H. RISLEY, Esq., B.A., C.I.E., I.C.S., Vice-President, in the chair.

The following members were present:—

Syed Abdul Alim, Mr. J. Bathgate, Babu Monmohan Chakravarti, Mr. W. K. Dods, Mr. F. Doxey, Mr. J. N. Das Gupta, Mr. T. H. Holland, Mr. D. Hooper, Mr. V. H. Jackson, Mr. C. Little, Mr. J. Macfarlane, Dr. M. M. Masoon, Mr. W. H. Miles, Mr. L. Morshead, Hon. Dr. Asutosh Mukhopadhyaya, Mr. J. D. Nimmo, Mr. W. Parsons, H.H. The Maharaja Girja Nath Rai, Dr. E. D. Ross, Pandit Yogesa Chandra Sastree, Mahamahopadhyaya Haraprasad Shastri, Mr. A Tocher, Babu Nagendra Nath Basu, Pandit Satis Chandra Vidyabhushan.

Visitors:—Mr. E. C. Cotes, Mr. B. A. Gupta, Mrs. D. Hooper, Mrs. and Miss McMaster, Captain H. W. R. Senior.

According to the Rules of the Society, the Chairman ordered the voting papers to be distributed for the election of Officers and Members of Council for 1904 and appointed Messrs. W. K. Dods and V. H. Jackson to be Scrutineers.

The Chairman then called upon the Secretary to read the Annual Report.

ANNUAL REPORT FOR 1903.

The Council of the Society have the honour to submit the following Report on the state of the Society's affairs during the year ending 31st December, 1903.

Member List.

During the year under review 19 Ordinary Members were elected, 10 withdrew, 4 died, 3 were removed from the list under Rule 40, being more than 3 years absent from India, and 2 were struck off under Rule 9, not having paid their admission fees. The name of one member was replaced as he withdrew his letter of resignation under Rule 34. The total number of members at the close of 1903 was thus 335 against 334 at the preceding year; of these 127 were Resident, 126 Non-Resident, 15 Foreign, 21 Life, 45 Absent from India, and 1 Special Non-Subscribing Member, as will be seen from the following table which also shows the fluctuations in the number of Ordinary Members during the past six years:—

YEAR.	PAYING.				NON-PAYING.				GRAND TOTAL.
	Resident.	Non-Resident.	Foreign.	Total.	Life.	Absent.	Special Non-Subscribing.	Total.	
1898	122	108	11	241	23	35	1	59	300
1899	120	119	13	252	21	27	1	49	301
1900	116	124	18	258	22	30	1	53	311
1901	123	133	13	269	22	36	1	59	328
1902	126	126	14	266	21	46	1	68	334
1903	127	126	15	268	21	45	1	67	335

The four Ordinary Members the loss of whom by death during the year we have to regret, were Mr. M. N. Chatterji, Mr. W. B. Colville, Mr. W. Connan and Babu Ram Din Singh.

There were two deaths amongst the Honorary Members, *viz.*, Professor E. B. Cowell and Sir George Stokes, Bart.

The List of Special Honorary Centenary Members, Corresponding Members and Associate Members, continue unaltered from last year. there having been no casualties: their numbers stand at 4, 1, and 13, respectively.

No members compounded for their subscription during the year.

Indian Museum.

No presentations were made over to the Indian Museum.

The Trustees on behalf of the Society were :—

The Hon. Mr. A. Pedler, C.I.E., F.R.S.

Dr. Mahendralal Sarcar, C.I.E., D.L.

G. W. Küchler, Esq., M.A.

T. H. Holland, Esq., F.G.S., A.R.C.S.

The Hon. Sir J. A. Bourdillon, K.C.S.I.

Finance.

The Accounts of the Society are shown in the Appendix under the usual heads.

Statement No. 8 contains the Balance Sheet of the Society, and of the different funds administered through it.

The financial position of the Society show a steady increase and the credit balance at the close of the year amounts Rs. 1,81,826-9-6, which is over six thousand rupees better than last year.

The Budget for 1903 was estimated at the following figures :—

Receipts Rs. 18,500 ; Expenditure Rs. 22,449-4 (Ordinary Rs. 16,949-4, Extraordinary Rs. 5,500).

Taking into account only the ordinary items of receipts and expenditure for the year 1903, the actual results have been :—Receipts Rs. 20,313-9-6. Expenditure Rs. 11,966-10-3, showing a balance in favour of the Society on its ordinary working of Rs. 8,346-15-3. Against this balance there has been several extraordinary items of expenditure amounting to Rs. 4,593-7-6. Notwithstanding this extraordinary expenditure there is still a saving of Rs. 3,753-7-9 during the year. In addition to this, a sum of Rs. 544 has been added to the Reserve Fund on account of entrance fees paid during the year.

There is an increase in receipts under every head except "Rent of Rooms" and this is due to the non-receipt of rent from the Photographic Society of India for one month, which has been received in 1904.

The ordinary expenditure was estimated at Rs. 16,949-4, but the amount paid out was only Rs. 11,966-10-3. The principal items in excess were "Lighting," "Meetings," and "Contingencies." "Lighting" was estimated at Rs. 100, while the actuals were Rs. 261-4. This increase is chiefly due to the payment of bills for electric lights and fans. Owing to expenses incurred in connection with two Scientific Lectures given in the Society's rooms, there is an increase of Rs. 54-3 under the head "Meetings."

The increase of Rs. 240-0-4 for Contingencies is due to various

sundry items of expenditure, *viz.*, for illuminating the Society's premises on the occasion of the Coronation celebration in Calcutta. There is a very slight increase under the heads "Freight" and "Proceedings."

The actual expenditure on the Journal was as follows :—

			Rs. As. P.		
Journal	{ Part I	...	...	636	4 6
	{ Part II	...	...	878	8 3
	{ Part III	...	...	228	5 6
Total ...			Rs. 1,743 2 3		

against a budget provision of Rs. 6,200. This is less than the Budget estimate by Rs. 4,456-13-9, but it must be mentioned that several bills for printing the Journal have not yet been paid owing to an extra charge under the head "Alterations," which the Superintendent of the Baptist Mission Press has been asked to explain. Against these bills, a sum of Rs. 3,642-2 has been paid as "advance," which together with the actual expenditure on the three parts of the Journal amounts to Rs. 5,385-4-3.

There were three extraordinary items of expenditure during 1903 under the heads of "Royal Society's Catalogue," "Type-Writer and Duplicator," and "Max Müller Memorial Fund" not provided for in the Budget. The expenditure on the Royal Society's Catalogue has been Rs. 618-14-6, while the receipts under this head from subscription on behalf of the Central Bureau has been Rs. 1,647-11, which sum will be remitted during the current year. Rs. 532-8 has been spent for a Type-Writer and a Duplicator for the Society's office, and a sum of Rs. 669-10 has been remitted to the Secretary, Max Müller Memorial Fund. This amount was collected by the Society in aid of the fund.

Out of the sum of Rs. 1,000 budgetted for the Society's Library Catalogue, only Rs. 358-7 has been spent towards the salary of the assistant engaged in revising the Library Catalogue and other expenses incurred in connection therewith.

The Budget Estimate of probable Receipts and Disbursements for 1904 has been fixed as follows:—Receipts Rs. 17,700, Expenditure Rs. 17,254-4.

On the Receipt side, the estimated income under the head of "Interest on Investments" is based upon the actuals of the last year. "Rent of Rooms" has been decreased by Rs. 1,125 as the Photographic Society of India, owing to insufficiency of accommodation, have decided to vacate the rooms rented to them by the end of February 1904.

On the Expenditure side, the items of "Freight" and "Meetings" have been slightly increased. Lighting has been increased by Rs. 220

owing to electric lights and fans, and the item of Contingencies is based upon the actuals of the past three years. Other heads remain unaffected.

There will, however, be four Extraordinary items of expenditure to be dealt with during the year 1904. Rs. 1,000 has been budgetted for Library Catalogue to meet expenses that may be incurred during the year. Mr. A. E. Caddy has been entrusted with cleaning and varnishing the Society's pictures at a fee of Rs. 1,000, and he has received Rs. 500 as "advance." It is further under the consideration of the Council to reline and repair certain pictures, and Mr. Caddy is willing to carry out the work at a fee of not more than Rs. 800. A sum of Rs. 1,800 has been allotted for these purposes. The Council have ordered out from London oak gilt frames for the Society's pictures at an estimated cost of Rs. 3,000, and to pay off Messrs. Martin and Co. for renewing the floor of the entrance of the Society's premises. Their dues amount to a sum of Rs. 2,320.

BUDGET ESTIMATE FOR 1904.

	Receipts.								
	1903.			1903.			1904.		
	Estimate.			Actuals.			Estimate.		
	Rs.	As.	P.	Rs.	As.	P.	Rs.	As.	P.
Subscriptions ...	7,500	0	0	7,901	8	0	7,500	0	0
Sale of Publications ...	600	0	0	1,316	6	0	600	0	0
Interest on Investments	5,800	0	0	6,541	8	0	6,000	0	0
Rent of Rooms ...	1,500	0	0	1,375	0	0	500	0	0
Government Allowances	3,000	0	0	3,000	0	0	3,000	0	0
Miscellaneous ...	100	0	0	179	3	6	100	0	0
Total ...	18,500	0	0	20,313	9	6	17,700	0	0

Expenditure.

		Rs. As. P.	Rs. As. P.	Rs. As. P.
Salaries	...	3,800 0 0	3,577 7 4	3,800 0 0
Commission	...	425 0 0	406 15 0	425 0 0
Stationery	...	120 0 0	98 8 0	120 0 0
Lighting	...	100 0 0	261 4 0	320 0 0
Municipal Taxes	...	884 4 0	884 4 0	884 4 0
Postage	...	500 0 0	420 2 0	500 0 0
Freight	...	60 0 0	65 10 9	75 0 0
Meetings	...	80 0 0	134 3 0	100 0 0
Contingencies	...	400 0 0	640 0 4	500 0 0
Books	...	2,000 0 0	1,813 13 7	2,000 0 0
Binding	...	750 0 0	390 0 0	700 0 0
Journal, Part I.	...	2,100 0 0	636 4 6	2,100 0 0
" " II	...	2,100 0 0	878 8 3	2,100 0 0
" " III	...	2,000 0 0	228 5 6	2,000 0 0
Proceedings	...	600 0 0	647 9 0	600 0 0
Printing circulars, &c.	...	200 0 0	153 11 0	200 0 0
Registration Fee	...	5 0 0	5 0 0	5 0 0
Auditor's Fee	...	100 0 0	100 0 0	100 0 0
Petty Repairs	...	100 0 0	.....	100 0 0
Insurance	...	625 0 0	625 0 0	625 0 0
Total	...	16,949 4 0	11,966 10 3	17,254 4 0

Extraordinary Expenditure.

	1903. Estimate. Rs. As. P.	1903. Actuals. Rs. As. P.	1904. Estimate. Rs. As. P.
Library Catalogue	1,000 0 0	358 7 0	1,000 0 0
Royal Society's Catalogue	.....	618 14 6	.....
Max Müller Memorial Fund	.....	669 10 0	.....
Electric Lights and Fans	2,500 0 0	2,414 0 0	.....
Books	2,000 0 0	.....	.....
Type-writer and Duplicator	.....	532 8 0	.....
Cleaning, Varnishing and Relining Pictures	.....	.....	1,800 0 0
Picture Frames	.....	.....	3,000 0 0
Repairs	.....	.....	2,320 0 0
Total	5,500 0 0	4,593 7 6	8,120 0 0

Agencies.

Our London Agency is still in the hands of Messrs. Luzac & Co. Owing to the death of Mr. C. G. Luzac and the unsettled condition of the firm, we will probably have to change their London Agency. They have submitted a statement of sales during 1902 and 1903. The value of the publications sent to them during the year amounts to £75-4-6 representing 702 copies of the various issues of the *Journal* and the *Proceedings*, and Rs. 415-12-0 representing 723 fasciculi of the *Bibliotheca Indica*. The proceeds of the sale of the *Journal* and the *Proceedings* and of the *Bibliotheca Indica* during 1902 and 1903 were £17-16-6 and Rs. 53-14-0, respectively. From them we have received books and papers of the value of £23-5-5.

Our Continental Agent is Mr. Otto Harrassowitz, to whom we have sent publications valued at £32-6-6 and Rs. 368-14-0, of which £29-9-4 and Rs. 356-11-10 worth have been sold for us. From him we have received periodicals of the value of £1-5-6.

Library.

The total number of volumes or parts of volumes added to the Library during the year was 2,426, of which 685 were purchased and 1,741 presented or received in exchange for the Society's publications.

In remodelling the new edition of the Society's Library Catalogue, the titles of numerous books had to be revised and as the number of slips prepared were too many to be inserted in the manuscript catalogue compiled by Mr. H. B. Perie, it has been found necessary to cut up the whole of the manuscript catalogue in order to arrange it for press. The work is close upon completion, and the manuscripts will be sent to press very shortly.

During the year there were several Meetings of the Library Committee relative to the proposed rejection of books from the Society's library. A number of books have been set aside, and the Council have decided to circulate a list of these among those members of Council who are not members of the Library Committee for their consideration, after which the lists will be laid before a General Meeting. Meanwhile these books are kept apart for inspection.

As an experiment, the Council have allowed the Imperial Library to borrow books from the Society for the use of its readers for three months. During the period from 28th October 1903, to 27th January 1904 only 4 works have been thus borrowed.

On the recommendation of the two Philological Secretaries, Babu Mahendra Nath Mukerjee was appointed Pandit for the Oriental Library in the place of Babu Charu Chandra Bhattacharya, resigned.

International Catalogue of Scientific Literature.

During the year 1903, Index-slips to the number of 624 were sent to the Director of the Catalogue.

With the exception of the volume of Zoology (which has not yet been published), and the second part of Botany (expected shortly), the whole of the first annual issue of the Catalogue has been distributed to subscribers; of the second annual issue the volume of Astronomy has already been distributed, and that of Bacteriology is expected shortly.

In addition to the subscriptions mentioned in the last year's report the Governments of Bombay and Madras have remitted direct to London their subscriptions for sets and separate volumes of the first annual issue.

A sum of Rs. 1,647-11 representing the subscriptions of:—The Dewan of Mysore (for two sets), The Bombay University and the Native General Library, Bombay, The State Council, Jammu, Kashmir (one set.), and the Government of India (Home Department) for the volumes actually supplied, and part subscriptions from the Librarian, Imperial Library, has been received.

Max Müller Memorial Fund.

From the sum of Rs. 716 collected by the Society in aid of the Max Müller Memorial Fund, Rs. 46-6 has been deducted for sundry expenses incurred by the Society, and the balance Rs. 669-10 has been remitted to Prof. A. A. Macdonell, Secretary to the Max Müller Memorial Fund. The thanks of the Executive Committee have been received for the amount.

Barclay Memorial Medal.

During 1903, the Council of the Society awarded the Barclay Memorial Medal to Major Ronald Ross (I.M.S., retired) in recognition of his work in the investigation of the transmission of Malaria by the mosquito.

Proposed Search for Persian and Arabic MSS.

The Society has made a representation to the Government of India. Home Department, showing the present position of the agency set up by Government in connection with the Society for the publication of Oriental Works and the search for and cataloguing of Oriental Manuscripts, and further suggesting for the consideration of Government whether a systematic search for Manuscripts of Persian and Arabic works might not suitably be instituted similar to the search for Sanskrit Manuscripts which has long been conducted in Bengal by the Society on behalf of Government.

Society's Premises and Property.

The Society's rooms have been fitted with electric lights and fans by Messrs. Kilburn & Co. at a total cost of Rs. 2,354, and the much needed improvement to the floor of the entrance of the Society's premises has been carried out with patent stone and marble by Messrs. Martin & Co. at a cost of Rs. 2,320.

On a report by Mr. E. B. Havell on the pictures of the Society, the Council entrusted Mr. A. E. Caddy with the work of cleaning and varnishing the pictures and backing them with Willesden canvas at a fee of Rs. 1,000. The work has well advanced and Mr. Caddy has received Rs. 500 on account. There are several pictures that require relining and repairs to damaged parts, and for this there will be an additional expenditure of about Rs. 800, which is under the consideration of the Council.

It has been decided to bring out from London oak gilt frames for the Society's pictures, and Messrs. Smith and Uppard have been asked to supply them, the estimated cost being between £150 and £200.

Exchange of Publications.

During the past year the Council accepted four applications for exchange of publications, viz:—(1) from the Cambridge Philosophical Society, the Society's *Journal*, Parts I-III and *Proceedings* for their *Proceedings*; (2) from the Royal Colonial Institute, London, the Society's *Journal*, Parts I-III and *Proceedings*, being exchanged for their *Journal*; (3) from the Servicio Meteorologico del Estado de Mexico, the Society's *Journal*, Part II, and *Proceedings* for their Boletin; (4) from Count F. L. Pullé, the Society's *Journal*, Parts I-III and *Proceedings* being exchanged for his *Studi Italiani di Filologia Indo-iranica*.

Secretaries and Treasurer.

Dr. E. D. Ross carried on the duties of Philological Secretary and Editor of the *Journal, Part I* till April, when Dr. T. Bloch returned from leave and took charge of the work. Dr. Bloch continued till November when he was absent on tour, and Dr. Ross kindly consented to undertake the work in addition to his own duties as Anthropological Secretary, Dr. Bloch retaining the Editorship of the *Journal*.

Captain L. Rogers, I.M.S., continued Natural History Secretary and Editor of the *Journal, Part II* till February, when he left India on furlough and Mr. E. P. Stebbing was appointed to officiate for him. Mr. Stebbing left India on the furlough in November, and on the return of Captain Rogers in December, the latter took charge of the work.

Mr. E. A. Gait continued Anthropological Secretary and Editor of *Journal, Part III* till August, when he left India on leave and Mr. E. H. Walsh, I.C.S., was appointed to officiate for him. Mr. Walsh carried on the work till November, when he left Calcutta and Dr. Ross was permanently appointed.

Dr. C. R. Wilson continued Treasurer till April, when he left India on leave and the Hon. Dr. Asutosh Mukhopadhyaya was appointed to officiate for him. The Hon. Dr. Mukhopadhyaya left Calcutta temporarily in September, and Mr. J. Macfarlane carried on the work till October when Dr. Wilson returned and took charge of the office.

Mr. J. Macfarlane continued General Secretary and Editor of the *Proceedings* throughout the year.

Mahānāhopādhyāya Haraprasād Shāstri was in charge of the Bibliotheca Indica and the Search for Sanskrit Manuscripts, and carried on the duties of the Joint Philological Secretary throughout the year.

Mr. J. H. Elliott continued Assistant Secretary and Librarian throughout the year.

Publications.

There were published during the year nine numbers of the *Proceedings* (Nos. 10 and 11 of 1902 and Nos. 1-8 of 1903) containing 143 pages of letter-press and 1 plate.

Of the *Journal, Part I*, three numbers were published (No. 2 and Extra No. 2 of 1902 and No. 1 of 1903) containing 219 pages of letter-press and 1 plate. The Extra No. 2 of 1902 consists of Professor E. B. Cowell's Translation of the Three Episodes from the Old Bengali Poem "Caṇḍi." Indexes for 1899, 1901 and 1902 were also published. During 1902, the Council authorised the addition of a Supplement to the three parts of the *Journal*. No Supplement to *Journal, Part I*, was published. It has now been decided to publish short notes on numismatic questions, with illustrations, as a Supplement to *Journal, Part I*, and the Editorship has been entrusted to Mr. H. Nelson Wright, I.C.S.

Of the *Journal, Part II*, three numbers were published (No. 1-3 of 1903) containing 111 pages of letter-press and 6 plates. There was also published the Index for 1902.

Of the *Journal, Part III*, two numbers were published (Nos. 1-2 of 1903) containing 106 pages of letter-press. There were also published the Indexes for 1894-1898, 1899-1901 and 1902. In reply to the representation submitted by the Society in connection with the grant of Rs. 1,000 per year for *Journal, Part III*, from the Assam Administration, the Honourable the Chief Commissioner of Assam has decided to continue the annual grant to the Society for the collection of Anthropological and Ethnographical information in Assam pending further orders. The

Council have established a *Depôt* for the registration and storage of Anthropological Photographs in India at the Society's rooms similar to that which the British Association for the Advancement of Science has adopted in England. The circular issued by the British Association, with a note on the subject, is issued as a leaflet in the Society's Journal, Part III, No. 2 for 1903 and subsequent issues.

Proceedings.

The most interesting paper in the Proceedings is Babu Gîrindra Nāth Dutt's History of Hatwa Raj, tracing the descent of the present Rājā from Virasena, the great conqueror of southern India before the Christian era. The family flourished under the Moghal rule and came under the British rule in 1765 on the assumption of the Dewani of Suba Bangla by the East India Company. The discovery of the Sarāk caste of weavers in the district of Cuttack professing a sort of Buddhist creed throws some light on the process by which Buddhism gradually retired from the plains and is still hiding itself in retired nooks and corners of Eastern India. On this subject two papers were read: the one by Satisa Candra Ācāryya has been published. The discussion of the origin of the caste system produced some interesting papers. Pandit Satisa Candra Ācāryya attempted to prove that the ancients considered foreigners to be *Vrātyas*, i.e., fallen from the original four castes. Pandit Yogesa Candra Sāstri wrote a paper on the origin of the Kāp section of the Vārendra class of Brāhmans of Bengal which throws new light on the question. Babu Hari Mohan Siṃha wrote a paper on the Koch people in Northern India. Mr. O'Mally's paper on Gayā Śrādh is very interesting as showing what part demonworship still plays in Hindu rituals. The Orāṇs in Chota Nagpur are an interesting non-Aryan people, and their religion and superstition have been made the subject of an interesting paper by Rev. F. Hahn. He gives the number of totemistic septs and the taboo attached to each among this people.

Babu Monmohan Chakravati's paper on the Eastern Ganga Kings gives a list of fourteen kings from Choḍa Ganga, Saka 998, to Nrisiṃha Deva IV of Orissa, Saka 1346. M. M. Haraprasad Sāstri's paper identifies Rāmgarh in the Sarguja State with the Rāma Giri hill, the starting point of the cloud in Kalidasa's Meghadūta, and if his interpretation of the Asoka character inscriptions there be correct, it would be interesting to note that even secular subjects formed the objects of these inscriptions.

Journal, Part I.

Three numbers have been published during the last year, viz., No. 2 of Vol. LXXI, No. 1 of Vol. LXXII, and Extra No. 2 of

Vol. LXXI. No. 2 of the Journal for 1903 is almost ready for issue.

The extra number is devoted to translations of extracts from the Bengali poem *Caṇḍi*, by our late lamented Honorary Member, Professor E. B. Cowell of Cambridge. The poem was composed by Mukunda Rām Cakravartī, who lived during the latter half of the sixteenth and the early part of the seventeenth century, and seems to have passed his life in the districts of Burdwan and Midnapur. It is a picture of Bengali village life as it actually existed in the sixteenth century, before any European influences had begun to affect the national character, and it is this vivid realism which gives such a permanent value to the descriptions.

The papers published in the other numbers of Journal Part I mostly deal with historical and linguistic matters. First of all, there is a valuable account by Professor C. Bendall of the history of Nepal and surrounding kingdoms from 1000-1600 A.D. It is based on materials collected by Professor Bendall during his last journey to Nepal, which he undertook in the cold weather of 1898-99, in the company of our Joint Philological Secretary, Mahāmahopādhyāya Hara Prasād Shāstri, and it will be reprinted as an introduction to the joint report on their discoveries, to which we may look forward at an early date. Professor Bendall collected a great number of colophons of MSS. furnishing historical dates, and by the help of these as well as by the native chronicles in the Mahārāja's library, especially a palm-leaf MS. of a Vamāvali he put together a very detailed record of the chronology of the kings, that ruled over Nepal and adjacent countries from 1000 to 1600 A. D. Babu Monmohan Chakravartī has done the same for the Eastern Ganga kings of Kalinga, who ruled over Orissa from the 12th century A.D. His materials generally consist in dated temple-inscriptions, of which many are to be found in Orissa as well as in the country south of it, now included in the Madras Presidency. The history of Western Bundelkhand has been described in an article by Mr. C. A. Silberrad, F.C.S. It gives an English translation of a modern vernacular history, written by Diwan Bijho Bahadur Mazbut Singh, which is valuable on account of the many local traditions to which it refers.

As regards Muhammadan History in India, Mr. W. Irvine, late of the Civil Service, has given us a further contribution on the Later Mughals, dealing with the events during Farrukhsiyar's reign from March, 1713, to April 21st, 1716; while Dr. Ross has published an account of Faqir Khair-ud-din Muhammad, the historian of Shāh 'Ālam.

The history of the Licchavis of Vaisali forms the subject of an article by Paṇḍit Satisa Candra Vidyābhūṣaṇa. The author's theory

that the Licchavis were foreigners, coming from Nisibis, is, to say the least, startling. The same author also contributed a paper on the Mixed Castes, mentioned in the Sanskrit Law Books, in which he discussed the Ethnological meaning and probable derivation of all those caste names.

Chirand, a place of archaeological interest in the district of Saran, which Dr. Hoey recently tried to identify with Vaisali, has been described in a note by Babu Nundo Lal Dey. Mr. Edward O'Brien, Deputy Commissioner of Kangra, contributed a grammar of the modern vernacular of the Kangra valley, with a glossary of words peculiar to that dialect.

Finally, as regards Tibet, we have ready for immediate issue two articles by Mr. E. H. C. Walsh, I.C.S. One deals with the Tibetan Dictionary by Rai Sarat Chandra Das Bahadur. The value of the work, as a Dictionary of the literary language, according to Mr. Walsh is of a high standard, but it misses at the same time the necessary completeness as regards the colloquial language, and he suggests the compilation of a purely colloquial Dictionary. The other article gives an interesting list of Tibetan books, collected by a Japanese Buddhist scholar in Tibet.

Journal, Part II.

During the last year three numbers of Part II of the Journal have been issued containing a number of interesting papers. The Zoological side has been well represented by papers on the Aleurodidae, a family of insects closely allied to the scale insects and very common in India, by Mr. H. W. Peal, illustrated by five plates each containing numerous figures, together with two other shorter papers by the same author. The papers of interest by Mr. E. P. Stebbing illustrated by a plate relate to a beetle (*Thanasimus*) which appears to be an active agent in destroying certain insects which damage forest trees, and on a parasitic insect of the spruce fir, while Captain H. J. Walton contributes a note on the occurrence of rare birds near Calcutta.

The botanical papers include a description of some new *Scrophularinæ* by Major D. Prain. Among the papers on general subjects is an interesting communication on two rain-bursts in Bengal by Mr. C. Little, and one on an ancient Eastern Medicine by Mr. D. Hooper, while Dr. P. C. Ray contributes two articles on some mercury salts.

Journal, Part III.

Two numbers of this Part were issued during the year, comprising 106 pages. There were nine separate papers, and with each number were issued a Supplement. This last is an innovation suggested by

Mr. Gait; it has proved successful and a number of interesting notes were received from various quarters.

Among the papers published we may mention one on the *Gayā Ġrāddha and Gayāwāls*, by Mr. L. S. S. O'Malley. The *Gayā Ġrāddha* is a special form of orthodox Hinduism practiced in *Gayā* by a priestly caste, whose origin it is difficult to trace, called the *Gayāwāls*. These priests though almost entirely illiterate claim a very high position among Brahmanas and are treated with great respect and reverence. Their numbers are rapidly dwindling, and to-day there remain less than 300 pure *Gayāwāls*. Another paper was contributed by the Rev. F. Hahn on the Religious Superstitions of the *Orāōs*, which contains curious details of spirit worship and exorcism.

Mr. D. Sunder, Commissioner in the Sundarbans, published a paper on the charms and exorcism which are considered efficacious in that district for the dispersion and destruction of noxious animals. The wood-cutters who frequent the Sundarbans forests between the month of October and May never proceed to the jungle, we are told, without their *faqir*, who is supposed to possess the power to drive away the tigers. Mr. Sunder gives a translation of the various incantations employed by these *faqirs*.

Among the contributors of Notes to the Supplement were Major P. R. T. Gurdou; Mr. H. F. Howard, Mr. Gait, Mr. C. T. Stevenson-Moore, Babu Harimohana Simha and others.

Coins.

Thirty-eight coins were presented to the Society by the Bombay Branch of the Royal Asiatic Society, the Government of the United Provinces of Agra and Oudh, and by Babu Rampada Chatterji, a Sub-Deputy Collector at Kishenganj, Purnea. Of these 5 are gold, 31 silver, and 2 copper coins. Among the gold coins there are two of Egyptian Kings, of A.D., 1439 and 1447, found at Aden—one of the Mamlūk Sultāns, found in the District of Ahmadabad, and a *padma-taṅka*. The silver coins belong to the Moghul Emperors. One is a coin struck by the East India Company in the name of Shāhjahān II, at Bombay (Mumbai), and there are also several rupees of the Company from the Benares Mint. The copper coins belong to Ahmad Shāh I, of Guzerat, and to Ahmad Shāh II of the Bahmani Dynasty.

With reference to the proposed amalgamation of the two collections of coins now held separately by the Indian Museum and the Asiatic Society of Bengal, the Council resolved not to sell the Society's collection of old coins but to lend to the Trustees of the Indian Museum so many of the Society's coins as they may require for an indefinite period

to be utilized with the collection of old coins at the Museum, and the coins lent should be permanently marked for future identification with the letters A.S.B. with which other objects lent by the Society have been marked so as to be distinguishable, and when that has been done the coins should be merged for purposes of classification and exhibition with the Museum coins.

Bibliotheca Indica.

The Bibliotheca publication showed, during the year under review rather unusual activity. Thirty-five fasciculi were published, of which three were in the Arabic-Persian series, thirty-two in Sanskrit and none in Tibetan series. Twenty-three works were under publication. Of the thirty-two Sanskrit fasciculi, three related to Sanskrit grammar, five to Hindu Philosophy, three to the Vedas, one to the Kalpasūtras, fifteen to the Sanskrit law and ritual, one to Purāṇa, two to Buddhist Philosophy and two to Jaina Sanskrit. The three fasciculi in the Arabic Persian series are all English translations of historical works in Persian. Of the thirty-two Sanskrit fasciculi three only are English translations, one of a Purāṇa and two of a very difficult philosophical work, the rest, editions of Sanskrit works.

The cost of printing those fasciculi amounted to Rs. 4,416-10-0. The editing fees amounted to Rs. 4,748-8-0, giving an average of Rs. 262-0-0 per fasciculus. Seven new works were undertaken during the course of the year.

1-2. The Dānakriyā Kaumudī Fasc 1-2 and Srāddhakriyā Kaumudī Fasc 1-3 are really continuations of the Varṇa Kriyā Kaumudī or simply Kriyā kaumudī by the great compiler of Smṛti in Western Bengal named Govindānanda Kavikaṅkaṇācāryya, who flourished by the middle of the sixteenth century and preceded Raghunandana by a generation. The work of editing has been entrusted to a young Smṛti scholar of Bhāṭpāra, Paṇḍit Kamala Kṛṣṇa Kāvya-tīrthā who seems to know his work well.

3. Vidhānā Pārijāta is a digest of civil and religious duties according to the Hīndu Sāstras. It was compiled in 1625 A.D. by Ananta Bhaṭṭa, son of Nāga Bhaṭṭa and grandson of Jahnū Bhaṭṭa at Benares. The family professed the Kāṇva Sākhā of the White Yajur Veda. It has five chapters called Stavakas dealing with Srāddha-Vyavathāra and Prāyascitta. The publication of the work has been entrusted to Paṇḍit Tārāprasanna Vidyāratna, one of the Professors of Sanskrit grammar in the Sanskrit College, Calcutta.

4. Satādūṣaṇi is a work by Venkatānātha, the founder of the Y mark section of the Rāmānuja sect in Southern India. It purports to find one hundred objections to Saṅkara's nondual theory. It has a

commentary by Rāmānuja Dāsa, a disciple of Bādhūla Śrīnivāsa. It is the standard work of a very large and influential section of the Hindus in Madras. Paṇḍit Seṣādri Ayer, the late personal assistant to the Director of Public Instruction, Madras, was entrusted with the edition of the Text with the Commentary. On his death, however, the editorship was transferred to the then Hon'ble P. Ānanda Cārlu, Visārada, Ray Bahadur, member of the Imperial Council for Madras. One fasciculus only of this work came out during the year under review but a good many sheets have since then been printed.

5. Tattvārthādhigamasūtra is a Jaina work professing to be a part of the teachings of Bardhamāna, the founder of the sect. It was put in the sūtra form by the great Jaina teacher Umāsvāti-vācaka with a commentary of his own. Umāsvāti is revered both by the Śvetāmbaras and Digambaras and is said to have flourished before the Christian era. The edition of the work has been entrusted to a young Jaina scholar of Ahmedabad, Mody Keṣavalāl Premcānd, a B.A. of the Bombay University. His work has been placed under the supervision of Professor Dr. Hermann Jacobi of the University of Bonn.

6. Nityācāraprādīpa by Narasiṃha Vājapeyi is to be differentiated from the Nityācārapaddhati by Vidyākara Vajapeyi which has just been finished in this series. One appears to be a supplement to the other. and both these form the standard compilation in Orissa on Smṛti. The edition has been entrusted to Paṇḍit Vinoda Vihāri Kāvyatīrtha who has just completed the other work.

7. Tantravārtika in Prose is a commentary on the Savarabhāṣya on the Miṃamsa Sūtras from chapter I, pada II, to chapter III, pada IV, by Kumārila Bhaṭṭa, the great predecessor of Śaṅkara, and the great reorganiser of modern Brahmanic society throughout India. He flourished in the beginning of the eighth century, and commented on the Savarabhāṣya. The first part of his commentary, i.e., on Chapter I, pada I, is written in verse and is called Sloka-Vārtika. The second part in prose up to Chapter III, pada IV, is called the Tantra-Vārtika. The commentary on the rest is called the Tūptikā. Babu Gangānāth Jhā, Professor of Sanskrit in the Muir Central College, Allahabad, was entrusted with the English translation of the first part, the Sloka-Vārtika, after making a creditable advance in that work, he applied for permission to translate the Tantra-Vārtika which was gladly accorded. He has bought out one Fasciculus of the second work.

The descriptive catalogue of the works that have come to a close.

(1) Varṣa Kriyā Kaumudī by Govindānanda Kavikaṅkanācāryya came to a close during the year under review. This is the first volume

of the series by the author, the other volumes are in the course of publication. The editor, Kamala Kṛṣṇa Kāvya-tīrtha, has given a short preface discussing the date of the author and describing the MSS collected. His index giving the works consulted by the author is specially valuable.

(2) Nityacāra Paddhati, by Vidyākar Vājapeyī, composed in the fourteenth century in Orissa under the patronage of King Narasimha, was finished in seven fasciculi. Paṇḍit Vinoda Vihāri Kāvya Tīrtha, the discoverer of the work, has edited it with care and has given a preface discussing the date of the author and circumstances under which he wrote. The indices appended are valuable.

(3) Trikāṇḍa Maṇḍanam or Apastamba-sūtra-dhvanitārtha-kārikā by Bhāskara Misra, called Trikāṇḍa Maṇḍana, son of Kumāra Svāmī, who boasts of being a mace and an axe to the opponents in disputation, purports to be the versified essence of the 10th Prāśna of the Āpastamba Śrauta Sūtras of the Black Yajurveda, treating of Soma Yāga. The editor, M. M. Candra Kānta Tarkālaṅkāra, has written a very meagre preface. He has not gone beyond his MSS. in editing this work.

(4) Āpastamba Śrauta Sūtra belonging to the Black Yajur Veda came to a close under the distinguished editorship of Prof. Dr. Richard Garbe of Tübingen in seventeen Fasciculi. The first twelve fasciculi were accompanied with a commentary by Varadutta Suta Ānarttiya, but the other fasciculi had no commentary. The editor has written an excellent preface discussing the peculiarities of language and grammar of Āpastamba, on the unity of the Sūtra collection of the Āpastamba School; on the position of these Sūtras in the ritual literature and topics of that sort. His index is extremely valuable.

Search for Sanskrit MSS.

M. M. Hara Prasād Sāstri was in charge of this department throughout the year. He took two trips to Benares, and his travelling Paṇḍits were touring in Orissa and in Western Bengal; nearly three hundred MSS. have been collected, of which about hundred acquired at Benares contained many interesting, and curious works. Many new digests of Hindu law and ritual have been brought to light. During the last three months the M. M. and his Paṇḍits were engaged in preparing an alphabetical list of all the MSS. in the Asiatic Society's rooms belonging to the Society and to Government. This list will be a valuable guide in acquiring new MSS in the future.

The Report having been read and some copies having been distributed, the Chairman invited the Meeting to consider it at their leisure.

The Chairman announced that the Elliott Prize for Scientific Research for the year 1903 would not be awarded, as the essay received in competition was not of sufficient merit to justify the award of the Prize.

Mr. H. H. Risley, Vice-President, then addressed the Meeting.

ANNUAL ADDRESS, 1904.

GENTLEMEN,

It is due to a series of accidents that I am called upon to take the chair to-night. The President, Mr. Bolton, is on leave in England and we, being old fashioned people and cherishing the traditions of a century ago, have not as yet adopted the relatively modern practice of making an officiating appointment in every casual vacancy. The two senior Vice-Presidents are also absent—a fact which only came to my notice a few days ago. Consequently it has been impossible for me to prepare an address reviewing the work of the Society, or the progress of any of the forms of research with which it deals, on the exhaustive scale achieved by Dr. Hoernle or even in the more modest fashion attempted by myself on a former occasion. I shall therefore merely call attention to some points of interest in the papers noticed in the report and shall then say a few words on the general question of the present position of the Society, and the causes which affect its influence and the character of its work.

The papers which interest me most are Mr. O'Malley's on Gaya and the Gayawals, and Dr. Hahn's on the Oraons. Both seem to support the position which I have taken up in the Census Report now being published, that the beginning of Animism and possibly of all religion are to be found in the recognition of indefinite impersonal powers, which are approached not by prayer but by magic, and that the personal element in religion is a later development. The legends cited by Mr. O'Malley are curious, but they are obviously of comparatively recent date, and they belong to the familiar class of myths that are evolved in the attempt to account for some ritual or usage that does not fit into the accepted system of religion. I suspect that the Gaya ritual is a survival of animistic observances older than either Buddhism or Hinduism, and adopted by the latter in that pleasingly Catholic spirit which is common to it and to the paganism of the Greeks and Romans. I cannot attempt to examine the question at length now, but I venture to think that it deserves further enquiry, and that a minute investigation of the Gaya ritual undertaken on the spot would disclose survivals pointing to its real origin. There is reason to believe that the Gaya district was once occupied by

the Munda Kols, and it seems possible that the hills near the town were worshipped by them as Marang Buru, and that the present worship may be a Hinduised version of some animistic ritual practised by the Mundas. The Asuras, I may add, figure very prominently in Munda religious traditions. An excellent account of the myths on the subject was given some years ago in the *Zeitschrift für Ethnologie* by Herr Jellinghaus, who was then a missionary in Ranchi.

Mr. Hahn refers to this legend in his paper on the Oraons. It is curious to read that when an Oraon has failed by magic to get rid of a disease caused by the impersonal powers which Mr. Hahn describes as evil spirits, he turns in prayer to Dherme the sun and says, "Now the case rests with thee." You will observe that he tries magic first and resorts to religion later on when his magic has failed him. That according to one school of thinkers is the normal course of evolution. The Oraons, like the Athenians, have an unknown God, but they build no altar to him. He haunts certain fields which must be kept fallow, though cattle may graze on them. Probably these are not conspicuous for fertility. Their medical practice is more simple than appetizing. It consists in sucking the navel of the patient and producing therefrom a worm which is the cause of the disease. The imagination of the sick man does the rest—an ancient principle which is now being revived on a large scale in America under a new name.

On Professor Bendall and Mr. Irvine's papers I have nothing to add to the notice in the report. Mr. Irvine shows incidentally how uncertain life was in the entourage of the Mughal Emperor who was a contemporary of Queen Anne, and what remarkably unpleasant methods were adopted in dealing with unpopular courtiers.

I now turn to the large question of the position and prospects of this Society. We all know that it is not the power that it was in its earlier days. We all know that people say that our meetings are dreary, that our journal appears at long and uncertain intervals, that its pages are devoid of all human or other interest. Well, that may be so; people must be presumed to know what interests them, and I should be the last person to call in question anything so infallible as popular opinion. But these things rather depend on the point of view, and the popular point of view is not invariably the most instructive one. I cannot help remembering how at a meeting of that august body, the British Association, a room was filled to overflowing to see a famous Polar explorer exhibit the rational dress—a pair of fur trousers—worn by the Eskimo ladies and to hear him descant in the most grotesque English imaginable on their undeniably capacious dimensions. For the scientific aspects of the explorer's work this cultured audience cared not a jot, and when the

first authority of the day on Polar geography got up to criticise some of the lecturer's conclusions on matters less attractive than female attire he was received with manifest signs of boredom and disapproval.

Yet when we have said, "*Populus me sibilat, at mihi plaudo*," is that quite the last word? I hardly think so, and that is why I have taken our position as a Society for the subject of this brief address. We shall all admit, when we have relieved our minds by a gibe at the Philistine in the street, that the authority and influence of the Society are not what they were a century ago. We do not do so much, and what we do does not attract so much general attention as it did. Those are the facts, there is no disputing them, but it seems worth while to make an attempt to discover their causes.

The standard explanation, a stock excuse for many things in India, is want of leisure. Every one is said to be too busy. The demands of official work, of business, of society are heavier than they were in the old days. People had time then to read and to think; they have no time now. That line of apology I would sweep aside as emphatically as His Excellency the Patron did five years ago, at the first meeting of the Society which he honoured with his presence. As crucial illustrations of its futility, I would appeal not only to the example of the Patron himself, who manages to find time for everything, but to the achievement of one of our Vice-Presidents, Mr. Pargiter, who has recently completed a critical edition and translation of the *Markandeya Purana*. Now if the absorbing labours of a Judge of the High Court present no barrier to his engaging in the most laborious form of linguistic research, how can the plea of overwork be put forward on behalf of the lighter duties—the mere distractions—of other branches of the public service, or of mercantile pursuits?

There is another stock apology which, like the former, is used in a loose general way to account for anything in India that is thought for the moment to be out of joint. We are told that since the days of railways and steamers Englishmen in India have become mere birds of passage, that they go to Europe so often that they lose their interest in the East, and get out of touch with the people and their ways. Consequently, so the argument runs, they no longer care to write papers for the Asiatic Society; its journal languishes and its meetings have become dull. The conclusion may or may not be true: the premise is, in my opinion, if not absolutely false, at any rate far too widely stated. There has never been a time when interest in India and in the East generally has been so keen and so widely diffused in Europe as it is at the present day. You see it in every branch of the subject with which this society deals, and it has been and will continue to be enormously quickened by the great political

movement which is now in progress—the scramble for possessions, trade interests and *points d'appui* in Asia. It is indeed hardly a paradox to say that if any one in this country is in want of a stimulus in the particular branch of study in which he is engaged, he will best find it in a visit to Europe and in contact with fellow-workers there. Any one of a dozen Societies will give him a cordial reception, and their enthusiasm revive his flagging energies. He will realise that the study of Indian subjects holds a higher place than it has ever done, that it is no longer treated as a thing apart which can be ignored with impunity, but that it enters into the solution of problems which a generation ago no one would have dreamed of approaching from the Indian point of view. Nor do I admit that the Europeans at work in India at the present day know less about the country and the people than their predecessors of a century ago. Of the country as a whole they know infinitely more because they have seen more, because trains and steamers move faster than boats and palanquins. Of the people also they can know more if they choose to take the trouble, for they have a better start. A good deal has been done of recent years by Mr. Crooke and others to arrange and systematise the vast mass of ethnographic information that is available. The ethnographic survey will add greatly to our stock of knowledge, and I am glad to be able to inform the society that for Assam the Hon. Mr. Fuller has modified the original scheme on lines which will give us a series of illustrated monographs on the tribes of that interesting province. In two or three years' time I hope that any one in any Province who desires to understand the structure and usages of Indian Society will find adequate guidance through the preliminary stages of the subject. It will rest with him to break new ground and to extend by research the information that has been placed at his disposal. For ignorance at any rate there will no longer be any excuse, and there will be the basis for that higher form of knowledge which consist in understanding the ways of alien races and appreciating their point of view.

For the real causes of the diminished influence of the Society we must look back to the history of its own growth and development. When our first President, Sir William Jones, gave to the world, as Sir Henry Maine admirably put it, "the modern science of Philology and the modern theory of Race," the Asiatic Society of Bengal had a practical monopoly of the new learning. The Calcutta scholars of that day, Jones, Colebrooke, Wilkins and Wilson, all of them active members of this Society, were the pioneers of the Sanskrit Renaissance as the Greek scholars of the 15th Century were of the revival of learning in Europe. But Calcutta was not long to remain the centre of Sanskrit studies. When the German Universities entered the field guided by Humboldt

and Wolff, and controlled by a Government too wise to leave the great national interest of higher education to the chances of private enterprise, the combination of industry and organization was bound to make itself felt. New centres of authority arose, and we now look to Germany for the latest light in the matter of Oriental Scholarship. One of the features of their method was the specialization of research. Some years ago when Professor Garbe visited India, I remember asking him some question about a passage in *Manu*. He explained the point, but added that the law books were not in his line and that for a really authoritative interpretation one should consult Bühler or Jolly. When people work on these lines can we wonder that our Society has been rather left behind in the domain of scholarship?

In the region of science, while the result has been the same, it has come about in rather a different way. When the Founder of the Asiatic Society defined the range of its inquiries as extending to whatever is performed by man or produced by nature, his words corresponded to the facts. We were then the sole organ of research in Asia. Whatever was done in Geology, Meteorology, Zoology, Botany was done at the instance of and through the agency of this Society, and the results of these researches were published in this Journal. Now all these branches of scientific activity have grown and developed on lines of their own. They have blossomed forth into separate departments, and they publish their own memoirs. This is the natural course of evolution. The Society has multiplied by fission, like the "philoprogenitive sponge" in Professor Daubeny's witty verses, and has given birth at successive epochs to the Geological Survey, the Meteorological Department, the Botanic Survey, the Indian Museum and the Linguistic Survey—a flourishing family of which it may well be proud. Looking back at these procreative efforts, can we be surprised that the parent organism is if not exhausted at least somewhat attenuated, and that in comparison with the portly volumes which its descendants produce (Dr. Grierson's Survey occupies 16 quarto volumes) its own publications should have shrunk to rather slender dimensions?

What then is there left for us to do? We cannot—I would frankly admit the fact—aspire to rival the Germans in the matter of scholarship, at any rate not at present. It may be that my friends Dr. Ross and Hara Prasad Sastri will succeed in creating traditions of critical accuracy on the lines recognised as sound in Europe and will train up a generation of Joneses, Colebrookes and Wilsons. But it will take a long time, for modern scholarship is a hard mistress to serve, and demands an intellectual equipment, a range of knowledge, and a standard of accuracy far beyond the reach of the typical Maulvi or Pandit. Until that ideal

has been realised we must content ourselves with the useful if inconspicuous work that we do now—collecting manuscripts and publishing texts, furnishing the material which European scholars will work up. In this matter we have the great advantage of being on the spot, and any one who will read Pandit Hara Prasad Sastri's report on his operations will see what a large quantity of valuable manuscripts have been saved from destruction or oblivion by his exertions and by the patient enquiries of his travelling subordinates. We hope that the Government will now place us in a position to extend this system to Arabic and Persian Manuscripts. The extension has been suggested and is more than justified by Dr. Ross's discovery in the library of the Calcutta Madrasa of an autograph manuscript history of Gujarat and of the earlier Moghals, which throws a new light upon an important period of Indian history. Where the materials are so scanty, and their value is so often vitiated by the position or predilections of the writer, the search for fresh sources of information is a duty which this Society can most properly undertake.

Another line of possible activity is antiquarian research in which the man on the spot has an obvious advantage over the most laborious student working at a distance. We all of us know how much Mr. Wilson has done to elucidate the obscure and complicated problem of the Topography of Old Fort William and the Black Hole. He has now crowned his labour by producing a scale model of the old Fort which will, I believe, be exhibited next month in the Indian Museum. *The model is a work of art in itself, and any one who chooses to study it can go to the actual sites, identify, with the help of the tablets erected under His Excellency the Viceroy's orders, the few portions of the original buildings that survive, and picture to himself exactly what the old Fort was like, and how it came to pass that 146 people were driven, without knowing where they were going, into the stifling cell, which Holwell describes as "a cube of 18 feet."

In connexion with the Fort and the Black Hole Mr. Wilson has not left much for any one who follows in his footsteps. But there are many localities in and around Calcutta which will repay similar exertions. Take for example the names of the Calcutta streets. I hear that all the Indian names are about to be recast on the Hunterian System, and that the street lamps will soon be embellished with some remarkable transformations of well-known names. Before this break is made with the past I trust some learned member of the Society will go into the question and tell us how the names themselves arose. A great deal of the early history of Calcutta is wrapped up in them and in name such as "Kolutola," which seems to record an ancient settlement of oil-pressers.

European and Armenian names demand investigation for the same reason. For all I know some one may have done this already; but the results are hidden away in forgotten papers of this Society and are not readily accessible. We want in fact some one to do for Calcutta in a systematic fashion what Sir Walter Besant did for London—to tell the story of its growth and development. If the facts are once cleared up you will find that plenty of romance goes with them.

I said above, and I fancy that no one will disagree with me, that in matters of scholarship the centre of authority has now been shifted to Europe. But mere scholarship is not every thing. It is only a means to the higher end of reconstructing the life of the past. In working towards this end students of the East have the great advantage that the present *is* the past or at any rate is so full of survivals of the past that it forms the only instructive commentary on the written record. Here it seems to me is the most promising field for the future researches of our Society. Let us admit that we are no longer supreme in scholarship, but let us endeavour to ascertain and analyse the actual facts of the present day—the customs, beliefs, superstitions and ritual that have descended without material alteration from very remote times. This may enable us to supplement and often to correct the conclusions of European scholars, to add colour to their descriptions, to reconstruct life in India as it was in the time of Buddha or perhaps even before Buddha and, as I ventured to suggest here five years ago, to elucidate not only Indian literature, but also those features in the life of the Greeks and Romans, which form part of the common heritage of the Aryans. If we attempt this, however, imperfectly we shall find for our selves ample and attractive occupation and we shall be doing useful work which no one else can do so well.

The Chairman announced that the Scrutineers reported the result of the election of Officers and Members of Council to be as follows:—

President.

The Hon'ble Mr. Justice F. E. Pargiter, B.A., I.C.S.

Vice-Presidents.

The Hon'ble Asutosh Mukhopadhyaya, M.A., D.L., F.R.S.E.

Major D. Prain, M.A., M.B., LL.D.

T. H. Holland, Esq., F.G.S., A.R.C.S.

Secretary and Treasurer.

Honorary General Secretary:—J. Macfarlane, Esq.

Treasurer:—C. R. Wilson, Esq., M.A., D. Litt.

Additional Secretaries.

Philological Secretary:—T. Bloch, Esq., Ph.D.

Nat. History Secretary:—Captain L. Rogers, M.D., B.Sc., I.M.S.

Anthropological Secretary:—E. D. Ross, Esq., Ph.D.

Joint Philological Secy.:—Mahamahopadhyaya Haraprasad Shastri.

Other Members of Council.

T. H. D. La Tonche, Esq., B.A.

Kumar Ramessur Maliah.

Arnold Caddy, Esq., M.D., F.R.C.S.

I. H. Burkill, Esq., M.A.

H. E. Kempthorne, Esq.

Major A. Alcock, M.B., LL.D., C.I.E., F.R.S.

C. Little, Esq., M.A.

W. K. Dods, Esq.

The Hon'ble Mr. A. Earle, I.C.S.

The Meeting was then resolved into the Ordinary General Meeting.

THE HON. DR. ASUTOSH MUKHOPADHYAYA, M.A., D.L., Vice-President, in the chair.

The minutes of the last meeting were read and confirmed.

Forty presentations were announced.

Mr. Percy Brooke Bramley was ballotted for and elected an Ordinary Member.

The Council reported that in consequence of the deaths of Prof. E. B. Cowell and Sir George Stokes, there were now six vacancies in the list of the Honorary Members. The Council therefore recommend the six following gentlemen for election as Honorary Members at the next Meeting.

Prof. Heinrich Kern, Leiden.

Dr. Ramkrishna Gopal Bhandarkar, C.I.E., Poona.

Dr. M. J. DeGoeje, Leiden.

Dr. Ignaz Goldziher, Budapest.

Sir Charles Lyall, London.

Sir William Ramsay, London.

Professor Heinrich Kern, born in Java in 1833, began his career as a scholar with contributions to the great Sanskrit Dictionary of Böhtlingk and Roth: from 1863-65 he was Sanskrit Professor in the college at Benares, and from the latter date he has been professor of Sanskrit in

Leyden. His connection with Java doubtless has led him to devote himself to ancient Javanese, and to Buddhism, in which subjects he is regarded as one of the chief living authorities. His work in Sanskrit has been most copious, and includes the edition of a text for the *Bibliotheca Indica*, and a translation of the same made for the Royal Asiatic Society.

J. MACFARLANE.

Dr. Ramkrishna Gopal Bhandarkar, M.A., first distinguished himself by literary and archaeological controversies with distinguished European scholars, and researches in the Geography of Panini and of Alexander's invasion. He was one of the principal contributors to the *Indian Antiquary* from its foundation in 1873. His history of Deccan is a masterpiece of accurate scholarship, and his fame depends chiefly on the volumes, six in number, which he has written in connection with the search of Sanskrit manuscripts in India, which are regarded as models of descriptive catalogues.

He joined the Education Service shortly after he left college and retired eleven years ago. Shortly after he was made the Vice-Chancellor of the Bombay University, and is at the present moment a member of the Imperial Legislative Council of India, and an honorary member of numerous Oriental Societies.

HARAPRASHAD SHASTRI.

Dr. M. J. DeGoeje.—Professor of Arabic in Leyden, Holland. Has done most valuable work in editing the great historical and geographical works of Arabic writers: notably his editions of Tabari's *Chronicle* and of Edrisi.

Dr. Ignaz Goldziher.—Professor of Semitic Philosophy, Buda Pesth. Perhaps the first authority in Europe on Muhammedan Law, Theology and Tradition. He is the author of many valuable works dealing with these subjects. Among them may be mentioned his "History of philological learning among the Arabs" and his "Mohammedan Studies."

Sir Charles Lyall, K.C.S.I., etc., etc.—Has a European reputation for his knowledge of ancient Arabic poetry. He has published a text and commentary of the *Muallaqat* and some English translations from Arabic poetry. He is engaged on an important edition of the *Mufaḍḍaliyyāt*.

E. DENISON ROSS.

Professor Sir William Ramsay, K.C.B., F.R.S., etc.—Eminent as an investigator in various departments of Chemistry. Sir Wil-

liam Ramsay's earlier researches were in the domain of organic chemistry. Later on he published a series of papers on Molecular Volumes, on the critical state and properties of liquids, and on molecular energy and the expansion of rarified gases, which were published in the year 1893. But the researches which secured for Sir William Ramsay world-wide reputation, are those which he carried on in conjunction with Lord Rayleigh, relating to the properties of argon, to be followed immediately after by the discovery of helium. The most recent of his researches treats of radio-activity, and, the production of helium from radium; these were communicated to the Royal Society in July last.

Sir William Ramsay is already a Foreign or Honorary Member of various Scientific Societies, among which may be mentioned, the French Academie des Sciences, the Royal Irish Academy, the Academies of Berlin and Turin, and the Philosophical Societies of Geneva and Leyden.

ASUTOSH MUKHOPADHYAY.

It was announced that Sir John Eliot had expressed a wish to withdraw from the Society.

The General Secretary reported the deaths of Mr. M. N. Chatterji and Mr. A. T. Pringle, Ordinary Members of the Society.

Read the following circular letter from the Government of India, Department of Revenue and Agriculture, No. 54-13-10, dated 28th November 1903, to the Government of Bengal, General Department, relative to the appointment of Dr. Denison Ross as the Honorary Epigraphist for Persian and Arabic Inscriptions.

"With reference to Mr. Muir-Mackenzie's Circular No. 38—17 of the 11th August 1892, and to paragraph 5 of the Government of India's Despatch No. 31 of the 16th June 1898, a copy of which was forwarded with this Department's Circular No. 1953—55, dated 13th June 1899, I am directed to state, for the information of His Honour the Lieutenant-Governor, that the Government of India have appointed Dr. Denison Ross, Principal of the Calcutta Madrassa, to be Honorary Epigraphist for Persian and Arabic Inscriptions.

2. I am to request that Archæological Surveyors may be instructed to forward to Dr. Ross all Persian and Arabic inscriptions and epigraphical materials relating thereto, which may be collected by themselves or sent to them by other Government officials. Arrangements for the publication of the epigraphical matter thus collected in the *Epigraphia Indica* are at present under consideration, and any

papers dealing with Persian and Arabic inscriptions and intended for publication there should therefore be sent to Dr. Ross."

The following paper was read:—

The Line at Infinity.—By INDUBHUSHAN BRAHMACHARI, M.A. Communicated by MR. C. LITTLE.

(Abstract.)

This paper contains a systematic and exhaustive investigation of the properties of what is known to Mathematicians as the Line at Infinity or Line Infinity. The position of any line on a plane may be completely determined, if we know the intercepts which this line makes upon two given intersecting lines which may be taken as the axes of co-ordinates. Now, if these intercepts become infinite in length, the line itself will move off to infinity. In other words, if the equation of the line situated within a finite region of the plane be $\frac{x}{a} + \frac{y}{b} = 1$, where a and b are the intercepts, the equation of the line at infinity will be the apparently paradoxical form $1 = 0$ or constant $= 0$. The two fundamental properties of this imaginary line are, first, every point on this line is at infinity, and secondly, that every point at infinity lies on it, or in other words this line is the complete point representative of infinity. Consequently, the idea of direction must not be associated with this line. Moreover, it is at the same distance from all ordinary points, because every point of it is at an infinite distance. One of the most familiar instances of the appearance of the line at infinity is in the investigation of the properties of circles, namely it is the imaginary chord of intersection of all concentric circles. Another instance of its appearance is as the pole of the centre of a conic; in other words, it is the line joining the points of contact of the asymptotes of a hyperbola with the curve. To put the matter in another way, although the asymptote is a tangent whose point of contact is at infinity, it is itself not the line at infinity because it does not lie entirely at infinity.

The present paper contains a detailed examination of the properties of this line, and shows how its introduction enables us to obtain the solutions of various problems connected with real lines and conics. The paper also contains applications of the properties of this line in connection with the theories of reciprocation and projection.

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OF THE
ASIATIC SOCIETY OF BENGAL.
ON THE 31ST DECEMBER, 1903.

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R. = Resident.    N.R. = Non-Resident.    A. = Absent.    N.S. = Non-Subscribing.  
L.M. = Life Member.    F.M. = Foreign Member.

*N.B.*—Members who have changed their residence since the list was drawn up are requested to give intimation of such a change to the Honorary General Secretary, in order that the necessary alteration may be made in the subsequent edition. Errors or omissions in the following list should also be communicated to the Honorary General Secretary.

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| Date of Election. |      |                                                                                                         |
|-------------------|------|---------------------------------------------------------------------------------------------------------|
| 1903 Feb. 4       | R.   | Abdul Alim. <i>Calcutta.</i>                                                                            |
| 1894 Sept. 27.    | N.R. | Abdul Wali, Maulavie. <i>Ranchi.</i>                                                                    |
| 1895 May 1        | N.R. | Abdus Salam, Maulavie, M.A. <i>Buckergunge.</i>                                                         |
| 1903 April 1      | N.R. | Abul Aas, Maulavi Syed, Raisand Zemindar. <i>Patna.</i>                                                 |
| 1901 Aug. 7       | A.   | Adams, Margaret. Baptist Zenana Mission. <i>Europe.</i>                                                 |
| 1888 April, 4     | R.   | Ahmud, Shams-ul-ulama Maulavie, Arabic Professor, Presidency College. <i>Calcutta.</i>                  |
| 1888 Feb. 1.      | R.   | Alcock, Major Alfred William, M.B., LL.D., C.I.E., F.R.S. <i>Calcutta.</i>                              |
| 1885 Mar. 4       | L.M. | Ali Bilgrami, Sayid, F.A., A.R.S.M., F.G.S. <i>Hyderabad.</i>                                           |
| 1899 Jan. 4.      | N.R. | Ali Hussain Khan, Nawab. <i>Bopal.</i>                                                                  |
| 1903 Oct. 28.     | R.   | Allan, Dr. A.S., M.B. <i>Calcutta.</i>                                                                  |
| 1900 Aug. 1.      | N.R. | Allen, C. G. H., I.C.S. <i>Darjeeling.</i>                                                              |
| 1874 June 3       | R.   | Amcer Ali, The Hon'ble Mr. Justice, M.A., C.I.E., Barrister-at-Law, Judge, High Court. <i>Calcutta.</i> |
| 1893 Aug. 31.     | A.   | Anderson, Major A. R. S., B.A., M.B., I.M.S. <i>Europe.</i>                                             |
| 1884 Sept. 3.     | R.   | Anderson, J. A. <i>Calcutta.</i>                                                                        |
| 1890 July 2.      | N.R. | Arnold, Thomas Walker, B.A., M.R.A.S. <i>Lahore.</i>                                                    |
| 1870 Feb. 2.      | L.M. | Baden-Powell, Baden Henry, M.A., C.I.E. <i>Europe.</i>                                                  |
| 1901 Jan. 2.      | R.   | Badshah, K. J., B.A., I.C.S. <i>Calcutta.</i>                                                           |
| 1898 Nov. 2.      | A.   | Bailey, The Revd. Thomas Grahame, M.A., B.D. <i>Europe.</i>                                             |
| 1891 Mar. 4       | N.R. | Baillie, D. C., I.C.S. <i>Ghazipur.</i>                                                                 |
| 1898 Aug. 3.      | N.R. | Bain, Lieut.-Col. D. S. E., I.M.S. <i>Mercara.</i>                                                      |
| 1891 April 1.     | F.M. | Baker, Edward Charles Stuart. <i>Europe.</i>                                                            |
| 1900 Aug. 29.     | R.   | Baker, The Hon. Mr. E. N., C.S.I., I.C.S. <i>Calcutta.</i>                                              |



| Date of Election. |      |                                                                                             |
|-------------------|------|---------------------------------------------------------------------------------------------|
| 1889 May 1.       | R.   | Banerji, The Hon. Mr. Justice Guru Das, M.A., D.L., Judge, High Court. <i>Calcutta</i> .    |
| 1896 Mar. 4.      | N.R. | Banerji, Satish Chandra, M.A. <i>Allahabad</i> .                                            |
| 1869 Dec. 1.      | L.M. | Barker, R. A., M.D. <i>Europe</i> .                                                         |
| 1885 Nov. 4.      | R.   | Barman, Damodar Das, <i>Calcutta</i> .                                                      |
| 1877 Jan. 17.     | N.R. | Barman, H. H. The Maharaja Radha Kishor Dev. <i>Tipperah</i> .                              |
| 1898 Mar. 2.      | N.R. | Barnes, Herbert Charles, I.C.S. <i>Shillong</i> .                                           |
| 1902 May 7.       | R.   | Bartlett, E. W. J. <i>Calcutta</i> .                                                        |
| 1894 Sept. 27.    | R.   | Basu, Nagendra Natha. <i>Calcutta</i> .                                                     |
| 1898 May 4.       | R.   | Bathgate, J. <i>Calcutta</i> .                                                              |
| 1895 July 3.      | L.M. | Beatson-Bell, Nicholas Dodd, B.A., I.C.S. <i>Europe</i> .                                   |
| 1876 Nov. 15.     | F.M. | Beveridge, Henry, I.C.S. (retired). <i>Europe</i> .                                         |
| 1900 April 4.     | N.R. | Bingley, Major A. H., I.A. <i>Simla</i> .                                                   |
| 1898 Nov. 2.      | N.R. | Black, Robert Greenhill. <i>Sylhet</i> .                                                    |
| 1859 Aug. 3.      | L.M. | Blanford, William Thomas, LL.D., A.R.S.M., F.G.S., F.R.G.S., F.Z.S., F.R.S. <i>Europe</i> . |
| 1897 Feb. 3.      | R.   | Bloch, Theodor, PH.D. <i>Calcutta</i> .                                                     |
| 1893 Feb. 1.      | N.R. | Bodding, The Revd. P. O. <i>Rampore Haut</i> .                                              |
| 1885 Mar. 4.      | A.   | Bolton, The Hon. Mr. Charles Walter, C.S.I., I.C.S. <i>Europe</i> .                         |
| 1895 July 3.      | A.   | Bonham-Carter, Norman, I.C.S. <i>Europe</i> .                                               |
| 1890 July 2.      | A.   | Bonnerjee, Womes Chunder, Barrister-at-Law, Middle Temple. <i>Europe</i> .                  |
| 1897 June 2.      | N.R. | Bose, Annada Prasad, M.A. <i>Jalpaiguri</i> .                                               |
| 1895 Mar. 6.      | R.   | Bose, Jagadis Chandra, M.A., D.Sc., C.I.E., Bengal Education Service. <i>Calcutta</i> .     |
| 1880 Nov. 3.      | R.   | Bose, Pramatha Nath, B.Sc., F.G.S. <i>Calcutta</i> .                                        |
| 1895 April 3.     | N.R. | Bourdillon, The Hon. Sir James Austin, K.C.I.E., C.S.I., I.C.S. <i>Mysore</i> .             |
| 1860 Mar. 7.      | L.M. | Brandis, Sir Dietrich, K.C.I.E., PH.D., F.L.S., F.R.S. <i>Europe</i> .                      |
| 1900 Aug. 1.      | A.   | Brown, Major E. Harold, M.D., I.M.S. <i>Europe</i> .                                        |
| 1901 Sept. 25.    | A.   | Buchanan, Major W. J., I.M.S. <i>Europe</i> .                                               |
| 1887 May 4.       | R.   | Bural, Nobin Chand, Solicitor. <i>Calcutta</i> .                                            |
| 1901 June 5.      | R.   | Burkill, I. H., M.A. <i>Calcutta</i> .                                                      |
| 1896 Jan. 8.      | N.R. | Burn, Richard, I.C.S. <i>Allahabad</i> .                                                    |
| 1900 May 2.       | N.R. | Butcher, Flora, M.D. <i>Palwal</i> .                                                        |
| 1898 Sept. 30.    | R.   | Cable, Ernest. <i>Calcutta</i> .                                                            |
| 1896 Jan. 8.      | R.   | Caddy, Dr. Arnold. <i>Calcutta</i> .                                                        |
| 1901 Jan. 2.      | A.   | Campbell, Duncan. <i>Europe</i> .                                                           |
| 1901 Mar. 6.      | N.R. | Campbell, W. E. M., I.C.S. <i>Mirzapur</i> .                                                |
| 1895 July 3.      | R.   | Carlyle, Robert Warrand, C.I.E., I.C.S. <i>Calcutta</i> .                                   |
| 1890 June 4.      | R.   | Chakravati, Man Mohan, M.A., B.L. Deputy Magistrate. <i>Ohinsurah</i> .                     |
| 1901 Mar. 6.      | N.R. | Chakravarti, Manmatha Nath. <i>Tamluk, Midnapur</i> .                                       |
| 1901 June 5.      | A.   | Chapman, E. P., I.C.S. <i>Europe</i> .                                                      |
| 1902 Aug. 27.     | R.   | Chandhuri, A., Barrister-at-Law. <i>Calcutta</i> .                                          |

| Date of Election. |      |                                                                                          |
|-------------------|------|------------------------------------------------------------------------------------------|
| 1893 Sept. 28.    | R.   | Chandhuri, Banawari Lala, B.Sc., Edin. <i>Calcutta.</i>                                  |
| 1902 April 2.     | R.   | Chunder, Raj Chunder, Attorney-at-Law. <i>Calcutta.</i>                                  |
| 1899 Jan. 4.      | A.   | Clemow, Dr. Frank Gerard, M.D., Edin. <i>Europe.</i>                                     |
| 1880 Aug. 26.     | F.M. | Clerk, Major-Genl. Malcolm G. <i>Europe.</i>                                             |
| 1903 Aug. 26      | R.   | Copleston, The Right Revd. Dr. Reginald Stephen,<br>D.D. <i>Lord Bishop of Calcutta.</i> |
| 1898 June 1       | F.M. | Cordier, Dr. Palmyr. <i>Europe.</i>                                                      |
| 1876 Mar. 1.      | F.M. | Crawford, James, B.A., I.C.S. <i>Europe.</i>                                             |
| 1901 June 5.      | R.   | Crawford, Major D. G., I.M.S. <i>Chinsurah.</i>                                          |
| 1887 Aug. 25.     | R.   | Criper, William Risdon, F.C.S., F.I.C., A.R.S.M.<br><i>Calcutta.</i>                     |
| 1877 June 6.      | A.   | Croft, Sir Alfred W., M.A., K.C.I.E. <i>Europe.</i>                                      |
| 1895 July 3.      | N.R. | Cumming, John Ghest, I.C.S. <i>Patna.</i>                                                |
| 1898 Aug. 26      | N.R. | Cuppago, Captain W. A., I.A. <i>Lucknow.</i>                                             |
| 1873 Dec. 3.      | F.M. | Dames, Mansel Longworth, I.C.S. <i>Europe.</i>                                           |
| 1896 Mar. 4.      | R.   | Das-Gupta, Jogendra Nath, B.A., Barrister-at-Law.<br><i>Calcutta.</i>                    |
| 1901 Aug. 28.     | N.R. | Das, Govinda. <i>Benares.</i>                                                            |
| 1903 Feb. 4       | N.R. | Das, Rai Bahadur Bhawan, M.A. <i>Hoshiarpur.</i>                                         |
| 1865 June 7.      | N.R. | Das, Raja Jay Krishna, Bahadur, C.S.I. <i>Moradabad.</i>                                 |
| 1879 April 7.     | N.R. | Das, Ram Saran, M.A., Secy., Oudh Commercial<br>Bank, Limited. <i>Fyzabad, Oudh.</i>     |
| 1900 July 4.      | N.R. | Das, Syam Sunder, B.A. <i>Benares.</i>                                                   |
| 1903 June 3       | N.R. | De, Hari Nath. <i>Dacca</i>                                                              |
| 1895 Sept. 19     | N.R. | De, Kiran Chandra, B.A., I.C.S. <i>Faridpur.</i>                                         |
| 1902 Mar. 5.      | R.   | Deb Raja Binoy Krishna, Bahadur. <i>Calcutta.</i>                                        |
| 1895 Dec. 4.      | N.R. | Delmerick, Charles Swift. <i>Bulaon.</i>                                                 |
| 1900 May 2.       | N.R. | Dev, Raja Satindra, Rai Mahesaya. <i>Bansberia.</i>                                      |
| 1899 Aug 30.      | N.R. | Dev, Raj Kumar Satchidanand, Bahadur. <i>Deogarh,<br/>Sambalpur.</i>                     |
| 1901 June 5.      | R.   | Dey, Nundolal. <i>Calcutta.</i>                                                          |
| 1902 Feb. 5.      | N.R. | Dixon, F. P., I.C.S. <i>Chittagong.</i>                                                  |
| 1898 Jan. 5.      | R.   | Dods, W. K. <i>Calcutta.</i>                                                             |
| 1902 July 2.      | R.   | Doxey, F. <i>Calcutta.</i>                                                               |
| 1886 June 2.      | R.   | Doyle, Patrick, C.E., F.R.A.S., F.R.S.E., F.G.S., <i>Cal-<br/>cutta.</i>                 |
| 1902 Jan. 8.      | N.R. | Drummond, J. R., I.C.S. <i>Shahpur.</i>                                                  |
| 1892 Sept. 22.    | R.   | Drury, Major Francis James, M.B., I.M.S. <i>Cal-<br/>cutta.</i>                          |
| 1889 Jan. 2.      | N.R. | Dudgeon, Gerald Cecil, Holta Tea Co., Ltd. <i>Palam-<br/>pur.</i>                        |
| 1879 Feb. 5.      | F.M. | Duthie, J. F., B.A., F.L.S. <i>Europe.</i>                                               |
| 1892 Jan. 6.      | R.   | Dutt, Gorindra Nath. <i>Calcutta.</i>                                                    |
| 1877 Aug. 30.     | R.   | Dutt, Kedar Nath. <i>Calcutta.</i>                                                       |
| 1892 Aug. 25.     | R.   | Dutt, Rai Narsingh Chunder, Bahadur. <i>Howrah.</i>                                      |
| 1900 April 4.     | A.   | Dyson, Major Herbert Jekyl, F.R.C.S., I.M.S.<br><i>Europe.</i>                           |
| 1900 July 4.      | R.   | Earle, The Hon. Mr. A., I.C.S. <i>Calcutta.</i>                                          |

| Date of Election. |      |                                                                                 |
|-------------------|------|---------------------------------------------------------------------------------|
| 1901 June 5.      | N.R. | Ede, Francis Joseph, C.E., A.M.I.C.E., F.G.S. <i>Silchar, Cachar.</i>           |
| 1903 Oct. 28      | R.   | Edelston, T. D. <i>Calcutta.</i>                                                |
| 1903 May 6        | N.R. | Edwards, Walter Noel. <i>Sootea, Assam.</i>                                     |
| 1871 Dec. 2.      | N.R. | Eliot, Sir John, M.A., K.C.I.E., F.R.S. <i>Simla.</i>                           |
| 1900 Mar. 7.      | A.   | Fanshawe, Sir Arthur Upton, C.S.I., K.C.I.E., I.C.S. <i>Europe.</i>             |
| 1900 Aug. 29.     | A.   | Fanshawe, The Hon. Mr. H. C., C.S.I., I.C.S. <i>Europe.</i>                     |
| 1903 Aug. 26      | N.R. | Faunthorpe, John Champion, I.C.S. <i>Naini Tal.</i>                             |
| 1901 Mar. 6       | N.R. | Fergusson, J. C. <i>Hardoi, Oudh.</i>                                           |
| 1899 Jan. 4.      | A.   | Ferrar, Lieutenant, M. L., I.A. <i>Europe.</i>                                  |
| 1894 Dec. 5.      | A.   | Finn, Frank, B.A., F.Z.S. <i>Europe.</i>                                        |
| 1898 Sept. 30.    | R.   | Firminger, The Revd. Walter K., M.A. <i>Calcutta.</i>                           |
| 1902 April 2.     | N.R. | Fuller, The Hon'ble Mr. J. B., C.I.E., I.C.S. <i>Shillong.</i>                  |
| 1900 Dec. 5.      | N.R. | Gabriel, E. V., I.C.S. <i>Indore.</i>                                           |
| 1903 Mar. 4       | R.   | Gage, Captain Andrew Thomas, M.A., M.B., B.Sc., F.L.S., I.M.S. <i>Silpur.</i>   |
| 1893 Jan. 11.     | A.   | Gait, Edward Albert, I.C.S. <i>Europe.</i>                                      |
| 1902 May 7.       | N.R. | Garrett, A., I.C.S. <i>Mozuffarpore.</i>                                        |
| 1899 Aug. 30.     | R.   | Garth, Dr. H. C. <i>Calcutta.</i>                                               |
| 1902 June 4.      | N.R. | Ghaznavi, A. A. <i>Mymensing.</i>                                               |
| 1889 Jan. 2.      | R.   | Ghose, Jogendra Chandra, M.A., B.L. <i>Calcutta.</i>                            |
| 1902 Feb. 5.      | R.   | Ghosh, Girish Chunder. <i>Calcutta.</i>                                         |
| 1889 Mar. 6.      | R.   | Ghosha, Bhupendra Sri, B.A., B.L. <i>Calcutta.</i>                              |
| 1869 Feb. 3.      | N.R. | Ghosha, Pratapa Chandra, B.A. <i>Vindiyachal.</i>                               |
| 1897 Dec. 6.      | A.   | Godfrey, Captain Stuart, I.A. <i>Europe.</i>                                    |
| 1861 Feb. 5.      | N.S. | Godwin-Austen, Lieut.-Colonel H. H., F.R.S., F.Z.S., F.R.G.S. <i>Europe.</i>    |
| 1899 Aug. 2.      | R.   | Goenka, Roomall. <i>Calcutta.</i>                                               |
| 1896 Nov. 4.      | A.   | Grant, A. J., I.C.S. <i>Europe.</i>                                             |
| 1897 July. 7.     | N.R. | Grant, Captain J. W., I.M.S. <i>Muscat.</i>                                     |
| 1876 Nov. 15.     | F.M. | Grierson, George Abraham, PH.D., C.I.E., I.C.S. <i>Europe.</i>                  |
| 1900 Dec. 5.      | L.M. | Grieve, J. W. A. <i>Kalimpong.</i>                                              |
| 1901 April 3.     | N.R. | Guha, Abhaya Sankara. <i>Goalpara.</i>                                          |
| 1898 June 1.      | N.R. | Gupta, Bepin Behari. <i>Cuttack.</i>                                            |
| 1898 April 6.     | N.R. | Gupta, Krishna Govinda, I.C.S., Barrister-at-Law. <i>Cuttack.</i>               |
| 1898 Jan. 5.      | N.R. | Gurdon, Major P. R. T., I.A. <i>Gauhati.</i>                                    |
| 1901 Mar. 6.      | N.R. | Habibur Rahman Khan, Maulavio. <i>Bhikampur.</i>                                |
| 1892 Jan 6.       | N.R. | Haig, Captain Wolseley, I.A. <i>Berar.</i>                                      |
| 1899 April 5.     | F.M. | Harc, Major E. C., I.M.S. <i>Europe.</i>                                        |
| 1884 Mar. 5.      | L.M. | Hassan Ali Qadr, Sir Syud, Nawab Bahadur, K.C.I.E. <i>Murshedabad</i>           |
| 1897 Feb. 3.      | R.   | Hayden, H. H., B.A., B.E., F.G.S., Geological Survey of India. <i>Calcutta.</i> |

| Date of Election. |      |                                                                                                |
|-------------------|------|------------------------------------------------------------------------------------------------|
| 1892 Aug. 3.      | A.   | Hill, Samuel Charles, B.A., B.Sc. <i>Europe.</i>                                               |
| 1872 Dec. 5.      | A.   | Hoernle, Augustus Frederick Rudolf, PH.D., C.I.F. <i>Europe.</i>                               |
| 1878 Mar. 6.      | A.   | Hoey, W., PH.D., I.C.S. (retired). <i>Europe.</i>                                              |
| 1891 July 1.      | R.   | Holland, Thomas Henry, A.R.C.S., F.G.S. Director, Geological Survey of India. <i>Calcutta.</i> |
| 1898 Feb. 2.      | R.   | Hooper, David, F.C.S. <i>Calcutta.</i>                                                         |
| 1884 Mar. 5.      | N.R. | Hooper, The Hon. Mr. John, B.A., I.C.S. <i>Allahabad.</i>                                      |
| 1901 Dec. 4.      | R.   | Hossack, Dr. W. C. <i>Calcutta.</i>                                                            |
| 1873 Jan. 2.      | L.M. | Houstoun, G. L., F.G.S. <i>Europe.</i>                                                         |
| 1890 Dec. 3.      | N.R. | Hyde, The Revd. Henry Barry, M.A. <i>Madras.</i>                                               |
| 1866 Mar. 7.      | F.M. | Irvine, William, I.C.S. (retired). <i>Europe.</i>                                              |
| 1903 Sept. 23.    | N.R. | Ito, Professor C. <i>Bombay.</i>                                                               |
| 1899 April 5.     | R.   | Kempthorne, H. E. <i>Calcutta.</i>                                                             |
| 1882 Mar. 1.      | N.R. | Kennedy, Pringle, M.A. <i>Mozuffarpore.</i>                                                    |
| 1867 Dec. 4.      | A.   | King, Sir George, M.B., K.C.I.E., LL.D., F.L.S., F.R.S., I.M.S. (retired). <i>Europe.</i>      |
| 1896 Aug. 27.     | A.   | Konstam, Edwin Max. <i>Europe.</i>                                                             |
| 1896 July 1.      | R.   | Küchler, George William, M.A., Bengal Education Service. <i>Calcutta.</i>                      |
| 1891 Feb. 4.      | N.R. | Kupper, Raja Lala Bunbehari. <i>Burdwan.</i>                                                   |
| 1899 Aug. 30.     | N.R. | Lal, Dr. Mannu. <i>Banda.</i>                                                                  |
| 1902 Feb. 5.      | N.R. | Lal, Lala Shyam. <i>Moradabad.</i>                                                             |
| 1902 Jan. 8.      | N.R. | Lall, Parmeshwara. <i>Gya.</i>                                                                 |
| 1887 May 4.       | L.M. | Lanman, Charles R. <i>Europe.</i>                                                              |
| 1889 Mar. 6.      | N.R. | La Touche, Thomas Henry Digges, B.A., Geological Survey of India. <i>Madras.</i>               |
| 1900 Sep. 19.     | R.   | Law, The Hon. Sir Edward F. G., K.C.M.G., C.S.I. <i>Calcutta.</i>                              |
| 1902 July 2.      | N.R. | Leake, H. M. <i>Dalsing Sarai.</i>                                                             |
| 1889 Nov. 6.      | R.   | Lee, W. A., F.R.M.S. <i>Calcutta.</i>                                                          |
| 1903 July 1.      | N.R. | Lefroy, Harold Maxwell. <i>Surat.</i>                                                          |
| 1900 May. 2.      | A.   | Leistikow, F. R. <i>Europe.</i>                                                                |
| 1902 Oct. 29.     | R.   | Lewes, A. H. <i>Calcutta.</i>                                                                  |
| 1889 Feb. 6.      | R.   | Little, Charles, M.A., Bengal Education Service. <i>Calcutta.</i>                              |
| 1902 July 2.      | R.   | Luke, James. <i>Calcutta.</i>                                                                  |
| 1869 July 7.      | F.M. | Lyll, Sir Charles James, M.A., K.C.S.I., C.I.E., LL.D., I.C.S. (retired). <i>Europe.</i>       |
| 1870 April 7.     | L.M. | Lyman, B. Smith. <i>Europe.</i>                                                                |
| 1896 Mar. 4.      | A.   | MacBlaine, Frederick, I.C.S. <i>Europe.</i>                                                    |
| 1902 July 2.      | R.   | Macdonald, Dr. William Roy. <i>Calcutta.</i>                                                   |
| 1901 Aug. 7.      | R.   | Macfarlane, John, Librarian, Imperial Library. <i>Calcutta.</i>                                |
| 1893 Jan. 11.     | L.M. | MacLagan, E. D., M.A., I.C.S. <i>Multan.</i>                                                   |

| Date of Election. |      |                                                                                                                        |
|-------------------|------|------------------------------------------------------------------------------------------------------------------------|
| 1891 Feb. 4       | R.   | Macpherson, Duncan James, M.A., C.I.E., I.C.S. <i>Calcutta.</i>                                                        |
| 1896 Feb. 5       | R.   | Macpherson, The Hon'ble Mr. William Charles, C.S.I., I.C.S. <i>Calcutta.</i>                                           |
| 1902 April 2.     | N.R. | Maddox, Captain R. H., I.M.S. <i>Ranchi.</i>                                                                           |
| 1893 Aug. 31.     | N.R. | Mahatha, Purnmeshwar Narain. <i>Mozuffarpore.</i>                                                                      |
| 1895 Aug. 29.     | R.   | Mahomed Gilani, Shamas-ul-Ulama Shaikh. <i>Calcutta.</i>                                                               |
| 1898 Nov. 2.      | N.R. | Maitra, Akshaya Kumar, B.A., B.L. <i>Rajshahi.</i>                                                                     |
| 1889 Jan. 2.      | R.   | Maliah, Kumar Ramessur. <i>Howrah.</i>                                                                                 |
| 1893 July 5.      | A.   | Mangos, C. D. <i>Europe.</i>                                                                                           |
| 1901 June 5.      | A.   | Mann, H. H., B.Sc. <i>Europe.</i>                                                                                      |
| 1889 Mar. 6.      | A.   | Mann, John, M.A. <i>Europe.</i>                                                                                        |
| 1893 Mar. 1.      | N.R. | Marriott, Charles Richardson, I.C.S. <i>Bhagulpur.</i>                                                                 |
| 1902 May 7.       | N.R. | Marshall, J. H. <i>Simla.</i>                                                                                          |
| 1903 Aug. 5.      | R.   | Masoom, Dr. Mirza Muhammad. <i>Calcutta.</i>                                                                           |
| 1892 April 6.     | N.R. | Maynard, Major F. P., I.M.S. <i>Darjeeling.</i>                                                                        |
| 1901 Aug. 28.     | R.   | McLeod, Norman. <i>Calcutta.</i>                                                                                       |
| 1899 Feb. 1.      | N.R. | McMahon, Captain A. H., C.S.I., C.I.E., I.A. <i>Quetta.</i>                                                            |
| 1899 Mar. 1.      | N.R. | McMinn, C. W., B.A., I.C.S. (retired). <i>Comilla.</i>                                                                 |
| 1895 July 3.      | F.M. | Melitus, Paul Gregory, C.I.E., I.C.S. <i>Europe.</i>                                                                   |
| 1886 Mar. 3.      | L.M. | Metha, Rustomjee Dhunjeebhoj, C.I.E. <i>Calcutta.</i>                                                                  |
| 1900 Mar. 7.      | N.R. | Meyer, William Stevenson, I.C.S. <i>Simla.</i>                                                                         |
| 1900 Jan. 19.     | R.   | Michie, Charles. <i>Calcutta.</i>                                                                                      |
| 1884 Nov. 5.      | R.   | Middlemiss, C. S., B.A., Geological Survey of India. <i>Calcutta.</i>                                                  |
| 1884 Sep. 3.      | R.   | Miles, William Harry. <i>Calcutta.</i>                                                                                 |
| 1898 April 6.     | N.R. | Milne, Captain C. J., I.M.S. <i>Kusanli.</i>                                                                           |
| 1874 May 6.       | F.M. | Minchin, F. J. V. <i>Europe.</i>                                                                                       |
| 1896 July 1.      | N.R. | Misra, Rai Lakshmi Sanker, Bahadur. <i>Benares.</i>                                                                    |
| 1897 Jan. 6.      | N.R. | Misra, Tulsi Ram. <i>Bareilly.</i>                                                                                     |
| 1901 Aug. 28.     | R.   | Mitra, Kumar Narendra Nath. <i>Calcutta.</i>                                                                           |
| 1897 Nov. 3.      | R.   | Mitra, The Hon'ble Mr. Justice Saroda Churan, M.A., B.L. <i>Calcutta.</i>                                              |
| 1901 Aug. 7.      | N.R. | Molony, E., I.C.S. <i>Ghazipur.</i>                                                                                    |
| 1895 July 3.      | N.R. | Monohan, Francis John, I.C.S. <i>Shillong.</i>                                                                         |
| 1898 May 4.       | R.   | Mookerjee, R. N. <i>Calcutta.</i>                                                                                      |
| 1902 July 2.      | R.   | Morshead, L. F., I.C.S. <i>Calcutta.</i>                                                                               |
| 1894 June 6.      | N.R. | Muhammad Shibli Noman, Shams-ul-Ulama Maulavi, Professor of Arabic in the Muhammadan Oriental College. <i>Aligarh.</i> |
| 1902 April 2.     | R.   | Mukerjee, Jaladhi Chunder. <i>Calcutta.</i>                                                                            |
| 1901 Jan. 2.      | N.R. | Mukerjee, Dr. U. C. <i>Birbhoom.</i>                                                                                   |
| 1894 Aug. 30.     | R.   | Mukerjee, Sib Narayan. <i>Uttarpara.</i>                                                                               |
| 1900 May 2.       | R.   | Mukerji, P. B., B.Sc. <i>Calcutta.</i>                                                                                 |
| 1899 Sept. 29.    | R.   | Mukharji, Jotindra Nath, B.A. <i>Calcutta.</i>                                                                         |
| 1886 May 5.       | R.   | Mukhopadhyaya, The Hon'ble Dr. Asutosh, M.A. D.L., F.R.A.S., F.R.S.E. <i>Calcutta.</i>                                 |
| 1892 Dec. 7.      | R.   | Mukhopadhyaya, Panchanana. <i>Calcutta.</i>                                                                            |

| Date of Election |      |                                                                                                          |
|------------------|------|----------------------------------------------------------------------------------------------------------|
| 1901 April 3.    | R.   | Mullick, Pramatha Nath. <i>Calcutta.</i>                                                                 |
| 1901 June 5.     | N.R. | Mullick, Ramani Mohan. <i>Meherpur.</i>                                                                  |
| 1885 June 3.     | N.R. | Nacmwoollah, Maulavie, Deputy Magistrate. <i>Etawah.</i>                                                 |
| 1901 Mar. 6.     | N.R. | Nevill, H. R., I.C.S. <i>Naini Tal.</i>                                                                  |
| 1900 Dec. 5.     | R.   | Nicoll, John. <i>Calcutta.</i>                                                                           |
| 1889 Aug. 29.    | L.M. | Nimmo, John Duncan. <i>Europe.</i>                                                                       |
| 1892 Oct. 27.    | F.M. | Norvill, Dr. Frederic H. <i>Europe.</i>                                                                  |
| 1885 Feb. 1.     | N.R. | Nyayaratna, Mahāmāhopādhyāya Mahesa Chandra, C.I.E. <i>Benares.</i>                                      |
| 1899 Jan. 7.     | A.   | O'Brien, P. H., I.C.S. <i>Europe.</i>                                                                    |
| 1900 Dec. 5.     | N.R. | O'Connor, Captain, W. F., R.A. <i>Darjeeling.</i>                                                        |
| 1900 Aug. 29.    | A.   | O'Dwyer, Michael Francis, B.A., I.C.S. <i>Europe.</i>                                                    |
| 1880 Dec. 1.     | A.   | Oldham, R. D., A.R.S.M., F.G.S., Geological Survey of India. <i>Europe.</i>                              |
| 1887 July 6.     | R.   | Onug, Moung Hla. <i>Calcutta.</i>                                                                        |
| 1901 Jan. 2.     | N.R. | Pande, Pandit Ramavatar, B.A., I.C.S. <i>Jhansi.</i>                                                     |
| 1880 Aug. 4.     | L.M. | Pandia, Pandit Mohanlall Vishnulall, F.T.S., <i>Muttra.</i>                                              |
| 1901 Aug. 28.    | A.   | Panton, E. B. H., I.C.S. <i>Europe.</i>                                                                  |
| 1880 Jan. 7.     | A.   | Pargiter, The Hon'ble Mr. Justice Frederick Eden, B.A., I.C.S. <i>Europe.</i>                            |
| 1901 June 5.     | R.   | Parsons, W. <i>Calcutta.</i>                                                                             |
| 1899 Aug. 2.     | R.   | Peake, C. W., M.A., Bengal Education Service. <i>Calcutta.</i>                                           |
| 1902 Aug. 6.     | R.   | Peal, H. W., F.E.S. <i>Calcutta.</i>                                                                     |
| 1873 Aug. 6.     | R.   | Pedler, The Hon. Mr. Alexander, C.I.E., F.R.S., Director of Public Instruction, Bengal. <i>Calcutta.</i> |
| 1888 June 6.     | L.M. | Pennell, Aubray Percival, B.A., Bar-at-Law. <i>Rangoon.</i>                                              |
| 1881 Aug. 25.    | R.   | Percival, Hugh Melville, M.A., Bengal Education Service. <i>Calcutta.</i>                                |
| 1877 Aug. 1.     | N.R. | Peters, Lieut.-Colonel C. T., M.B., I.M.S. <i>Bombay.</i>                                                |
| 1889 Nov. 6.     | F.M. | Phillott, Major D. C., I.A. <i>Europe.</i>                                                               |
| 1889 Mar. 6.     | R.   | Prain, Major David, M.A., M.B., LL.D., I.M.S., Superintendent, Royal Botanic Garden. <i>Sibpur.</i>      |
| 1889 Mar. 6.     | N.R. | Prasad, Hanuman, Raes and Zemindar. <i>Chunar.</i>                                                       |
| 1896 Sept. 25.   | N.R. | Pringle, A. T. <i>Madras.</i>                                                                            |
| 1880 April 7.    | N.R. | Raj, Bipina Chandra, B.L. <i>Jessore.</i>                                                                |
| 1895 Aug. 29.    | R.   | Rai Chaudhery, Jatindra Nath, M.A., B.L. <i>Barnagar.</i>                                                |
| 1901 June 5.     | N.R. | Rai, Lala Lajpat. <i>Lahore.</i>                                                                         |
| 1900 April 4.    | R.   | Raleigh, The Hon. Mr. T. <i>Calcutta.</i>                                                                |
| 1898 Aug. 3.     | N.R. | Ram, Sita, M.A. <i>Moradabad.</i>                                                                        |
| 1890 Mar. 5      | R.   | Ray, Prafulla Chandra, D.Sc., Bengal Education Service. <i>Calcutta.</i>                                 |

| Date of Election. |      |                                                                                       |
|-------------------|------|---------------------------------------------------------------------------------------|
| 1887 May 4.       | N.R. | Ray, Prasanna Kumar, D.Sc. (Lond. and Edin.), Bengal Education Service. <i>Dacca.</i> |
| 1884 Mar. 5.      | R.   | Risley, Herbert Hope, B.A., C.I.E., I.C.S. <i>Calcutta.</i>                           |
| 1903 Mar. 4.      | N.R. | Rogers, Charles Gilbert, F.L.S., F.C.H., Indian Forest Department. <i>Port Blair.</i> |
| 1900 April 4.     | R.   | Rogers, Captain Leonard, M.D., B.Sc., M.R.C.P., F.R.C.S., I.M.S. <i>Calcutta.</i>     |
| 1900 Aug. 29.     | N.R. | Rose, H. A., I.C.S. <i>Lahore.</i>                                                    |
| 1901 Dec. 4.      | R.   | Ross, E. Denison, Ph.D. <i>Calcutta.</i>                                              |
| 1896 Dec. 2.      | N.R. | Row, B. Suryanaran, B.A. <i>Bellary.</i>                                              |
| 1889 June 5.      | N.R. | Roy, Maharaja Girjanath. <i>Dinagpur.</i>                                             |
| 1903 July 1.      | R.   | Roy, Maharaja Jagadindra Nath, Bahadur. <i>Calcutta.</i>                              |
| 1885 Mar. 4.      | R.   | Rustomjee, Harjeebhoy Manickjee, C.I.E. <i>Calcutta.</i>                              |
| 1896 Aug. 27.     | N.R. | Samman, Herbert Frederick, I.C.S. <i>Jessore.</i>                                     |
| 1899 June 7.      | N.R. | Sarkar, Chandra Kumar. <i>Kowkanik.</i>                                               |
| 1898 Mar. 2.      | N.R. | Sarkar, Jadu Nath. <i>Bankipore.</i>                                                  |
| 1897 Nov. 3.      | R.   | Saunders, C. <i>Calcutta.</i>                                                         |
| 1902 Feb. 5.      | R.   | Schulten, Dr. C. <i>Calcutta.</i>                                                     |
| 1900 Dec. 5.      | N.R. | Schwaiger, Imre George. <i>Delhi.</i>                                                 |
| 1893 Jan. 11.     | L.M. | Scindia, His Highness the Maharaja. <i>Awalior.</i>                                   |
| 1902 Feb. 5.      | N.R. | Sen, A. C., I.C.S. <i>Bankura.</i>                                                    |
| 1900 Dec. 5.      | N.R. | Sen, Birendra Chandra, I.C.S. <i>Dinajpur.</i>                                        |
| 1901 Aug. 28.     | R.   | Sen, Upendranath. <i>Calcutta.</i>                                                    |
| 1885 April 1.     | R.   | Sen, Yada Nath. <i>Calcutta.</i>                                                      |
| 1897 Dec. 1.      | R.   | Seth, Mesroby J. <i>Calcutta.</i>                                                     |
| 1900 Mar. 7.      | R.   | Shastree, Pandit Yogesha Chandra. <i>Calcutta.</i>                                    |
| 1885 Feb. 4.      | R.   | Shastri, Mahāmāhopādhyāya Haraprasād, M.A. <i>Calcutta.</i>                           |
| 1902 Dec. 3.      | N.R. | Shastri, Harnarain. <i>Delhi.</i>                                                     |
| 1902 Mar. 5.      | R.   | Shastri, Rajendra Chandra, M.A. <i>Calcutta.</i>                                      |
| 1903 April 1.     | R.   | Shaun, Montague Churchill. <i>Calcutta.</i>                                           |
| 1900 May 2.       | R.   | Shrager, Adolphe. <i>Calcutta.</i>                                                    |
| 1899 May 3.       | N.R. | Silberrad, Chas. A., I.C.S. <i>Banda.</i>                                             |
| 1903 Aug. 26.     | N.R. | Simpson, J. Hope, I.C.S. <i>Naini Tal.</i>                                            |
| 1893 Mar. 1.      | N.R. | Singh, Maharaja Kumara Sirdar Bharat, I.C.S. <i>Ghazipur.</i>                         |
| 1902 Sep. 24.     | R.   | Singh, Kumar Birendra Chandra. <i>Calcutta.</i>                                       |
| 1895 Aug. 29.     | R.   | Singh, Lachmi Narayan, M.A., B.L. <i>Calcutta.</i>                                    |
| 1892 Mar. 2.      | L.M. | Singh, The Hon. Raja Ooday Pratab. <i>Binga.</i>                                      |
| 1889 Aug. 29.     | N.R. | Singh, H. H. The Maharaja Prabhu Narain, Bahadur. <i>Benares.</i>                     |
| 1892 Aug. 3.      | N.R. | Singh, H. H. The Hon. Maharaja Pratap Narain. <i>Ajodhya, Oudh.</i>                   |
| 1889 Nov. 6.      | N.R. | Singh, H. H. The Hon. Maharaja Rameshwara, Bahadur. <i>Darbhanga.</i>                 |
| 1894 Feb. 7.      | N.R. | Singh, H. H. Raja Vishwa Nath, Bahadur, Chief of Chhatarpur.                          |
| 1901 Aug. 7.      | R.   | Singha, Chandra Narayan. <i>Calcutta.</i>                                             |

| Date of Election |      |                                                                                            |
|------------------|------|--------------------------------------------------------------------------------------------|
| 1894 July 4.     | N.R. | Sinha, Kunwar Kushal Pal, M.A. <i>Narki P.O., Agra District.</i>                           |
| 1899 June 7.     | N.R. | Sinha, Purnenda Narayan. <i>Bankipur.</i>                                                  |
| 1867 April 3.    | R.   | Sircar, Dr. Mahondra Lal, M.D., C.I.E., D.L. <i>Calcutta.</i>                              |
| 1897 Jan. 6.     | R.   | Sircar, Anurita Lal, F.C.S. <i>Calcutta.</i>                                               |
| 1872 Aug. 5.     | N.R. | Skrefsrud, The Revd. Laurentius Olavi. <i>Rampore Haul.</i>                                |
| 1901 Dec. 4.     | N.R. | Spooner, D. Brainerd. <i>Benares.</i>                                                      |
| 1899 Nov. 1.     | N.R. | Srivastava, Lala Shyam Sunder Lal. <i>Pertabgarh.</i>                                      |
| 1898 April 6.    | N.R. | Stark, Herbert A., B.A. <i>Cuttack.</i>                                                    |
| 1901 Mar. 6.     | A.   | Stebbing, E. P. <i>Europe.</i>                                                             |
| 1891 Aug. 27.    | A.   | Stein, M.A., Ph.D. <i>Europe.</i>                                                          |
| 1895 July 5.     | A.   | Steinberg, Alfred Frederick, I.C.S. <i>Europe.</i>                                         |
| 1899 Aug. 30.    | R.   | Stephen, St. John, B.A., LL.B. <i>Barrister-at-Law Calcutta.</i>                           |
| 1900 Aug. 29.    | N.R. | Stephenson, Captain John, I.M.S. <i>Gujrat.</i>                                            |
| 1899 Mar. 1.     | R.   | Tocher, A. <i>Calcutta.</i>                                                                |
| 1868 June 3.     | R.   | Tagore, The Hon. Maharaja Sir Jotendra Mohun, Bahadur, K.C.S.I. <i>Calcutta.</i>           |
| 1898 April 6.    | R.   | Tagore, Maharaja Prodyat Coomar. <i>Calcutta.</i>                                          |
| 1893 Aug. 31.    | N.R. | Tate, G. P. <i>Seistan.</i>                                                                |
| 1878 June 5.     | N.R. | Temple, Colonel Sir Richard Carnac, Bart., C.I.E., I.A. <i>Port Blair.</i>                 |
| 1875 June 2.     | N.R. | Thibaut, Dr. G., Muir Central College. <i>Allahabad.</i>                                   |
| 1898 Nov. 2.     | R.   | Thornton, Edward, A.R.I., B.A. <i>Calcutta.</i>                                            |
| 1847 June 2.     | L.M. | Thuillier, Lieut.-Genl. Sir Henry Edward Landor, K.T., C.S.I., F.R.S., R.A. <i>Europe.</i> |
| 1891 Aug. 27.    | N.R. | Thurston, Edgar. <i>Madras.</i>                                                            |
| 1861 June 5.     | L.M. | Tremlett, James Dyer, M.A., I.C.S. (retired). <i>Europe.</i>                               |
| 1893 May 3.      | N.R. | Vanja, Raja Ram Chandra. <i>Mayurbhanga, District Balasore.</i>                            |
| 1898 Feb. 2.     | R.   | Vasu, Anurita Lal. <i>Calcutta.</i>                                                        |
| 1900 Aug. 29.    | A.   | Vaugham, Major J. C., I.M.S. <i>Europe.</i>                                                |
| 1890 Feb. 5.     | N.R. | Venis, Arthur, M.A., Principal, Sanskrit College. <i>Benares</i>                           |
| 1902 May 7.      | R.   | Vidyabhushan, Jogendra Nath Sen. <i>Calcutta.</i>                                          |
| 1902 June 4.     | R.   | Vidyabhushan, Pandit Satis Chandra, M.A. <i>Calcutta.</i>                                  |
| 1901 Mar. 6.     | A.   | Vogel, J. Ph., Ph.D. <i>Europe.</i>                                                        |
| 1894 Sept. 27.   | L.M. | Vost, Major William, I.M.S. <i>Muttra.</i>                                                 |
| 1902 Oct. 29.    | R.   | Vredenburg, E. <i>Calcutta.</i>                                                            |
| 1901 Aug. 7.     | A.   | Walker, Dr. T. L. <i>Europe.</i>                                                           |
| 1900 Jan. 19.    | R.   | Wallace, David Robb. <i>Calcutta.</i>                                                      |
| 1901 June 5.     | N.R. | Walsh, E. H., I.C.S. <i>Darjeeling.</i>                                                    |
| 1889 Nov. 6.     | R.   | Walsh, Lieut.-Col. John Henry Tull, I.M.S. <i>Calcutta.</i>                                |
| 1900 April 4.    | N.R. | Walton, Captain Herbert James, M.B., F.R.C.S., I.M.S. <i>Bombay.</i>                       |



| Date of Election. |      |                                                                                       |
|-------------------|------|---------------------------------------------------------------------------------------|
| 1865 May 3.       | A.   | Waterhouse, Major-General James. <i>Europe.</i>                                       |
| 1874 July 1.      | A.   | Watt, Sir George, Kt., C.I.E. <i>Europe.</i>                                          |
| 1899 Sept. 29.    | A.   | Welldon, The Revd. Dr. James Edward Cowell, D.D.<br><i>Europe.</i>                    |
| 1902 April 2.     | R.   | Wheeler, H., I.C.S. <i>Calcutta.</i>                                                  |
| 1896 Feb. 5.      | A.   | Williams, Captain Charles E., I.M.S. <i>Europe.</i>                                   |
| 1891 May 6.       | R.   | Wilson, Charles Robert, M.A., D. LITT., Bengal<br>Education Service. <i>Calcutta.</i> |
| 1900 Dec. 5.      | R.   | Woodman, H. C., I.C.S. <i>Calcutta.</i>                                               |
| 1894 Sept. 27.    | R.   | Woodroffe, John George, Barrister-at-Law. <i>Calcutta.</i>                            |
| 1894 Aug. 30.     | N.R. | Wright, Henry Nelson, B.A., I.C.S. <i>Allahabad.</i>                                  |
| 1898 July 6.      | R.   | Wyness, James, C.E. <i>Calcutta.</i>                                                  |

## SPECIAL HONORARY CENTENARY MEMBERS.

| Date of Election. |  |                                                                                   |
|-------------------|--|-----------------------------------------------------------------------------------|
| 1884 Jan. 15.     |  | Dr. Ernst Haeckel, Professor in the University of Jena.                           |
| 1884 Jan. 15.     |  | Charles Meldrum, Esq., C.M.G., M.A., LL.D., F.R.A.S., F.R.S.<br><i>Mauritius.</i> |
| 1884 Jan. 15.     |  | Professor A. H. Sayce, Professor of Comp. Philology.<br><i>Oxford.</i>            |
| 1884 Jan. 15.     |  | Professor Emile Senart, Member of the Institute of<br>France. <i>Paris.</i>       |

## HONORARY MEMBERS.

|              |  |                                                                                                                      |
|--------------|--|----------------------------------------------------------------------------------------------------------------------|
| 1848 Feb. 2. |  | Sir Joseph Dalton Hooker, G.C.S.I., C.B., M.D., D.C.L.,<br>LL.D., F.L.S., F.G.S., F.R.G.S., F.R.S. <i>Berkshire.</i> |
| 1875 Nov. 3. |  | Dr. Otto von Böhtlingk. <i>Leipzig.</i>                                                                              |
| 1879 June 4. |  | Dr. Albert Günther, M.A., M.D., PH.D., F.Z.S., F.R.S. <i>Surrey.</i>                                                 |
| 1879 June 4. |  | Dr. Jules Janssen. <i>Paris.</i>                                                                                     |
| 1879 June 4. |  | Professor P. Regnaud. <i>Lyons.</i>                                                                                  |
| 1881 Dec. 7. |  | Lord Kelvin, G.C.V.O., D.C.L., LL.D., F.R.S.E., F.R.S. <i>Glasgow.</i>                                               |
| 1883 Feb. 7. |  | William Thomas Blanford, Esq., LL.D., A.R.S.M., F.G.S.,<br>F.R.G.S., F.Z.S., F.R.S. <i>London.</i>                   |
| 1883 Feb. 7. |  | Alfred Russell Wallace, Esq., LL.D., D.C.L., F.L.S., F.Z.S.,<br>F.R.S. <i>Dorset.</i>                                |
| 1894 Mar. 7. |  | Mahāmāhāpodhyāya Chandra Kanta Tarkalankara.<br><i>Calcutta.</i>                                                     |
| 1894 Mar. 7. |  | Professor Theodor Noeldeke. <i>Strassburg.</i>                                                                       |
| 1895 June 5. |  | Lord Rayleigh, M.A., D.C.L., D.SC., LL.D., PH.D., F.R.A.S.,<br>F.R.S. <i>Witham, Essex.</i>                          |
| 1895 June 5. |  | Lt.-Genl. Sir Richard Strachey, R.E., G.C.S.I., LL.D., F.R.G.S.,<br>F.G.S., F.L.S., F.R.S. <i>London.</i>            |
| 1895 June 5. |  | Charles H. Tawney, Esq., M.A., C.I.E. <i>London.</i>                                                                 |
| 1896 Feb. 5. |  | Lord Lister, F.R.C.S., D.C.L., M.D., LL.D., D.SC., F.R.S. <i>London.</i>                                             |

| Date of Election. |                                                                                                           |
|-------------------|-----------------------------------------------------------------------------------------------------------|
| 1896 Feb. 5.      | Sir Michael Foster, K.C.B., M.A., M.D., D.C.L., LL.D., D.Sc.,<br>F.L.S., F.C.S., F.R.S. <i>Cambridge.</i> |
| 1896 Feb. 5.      | Professor F. Kiehlhorn, Ph.D., C.I.E. <i>Göttingen.</i>                                                   |
| 1896 Feb. 5.      | Professor Charles Rockwell Laumann. <i>Massachusetts,</i><br><i>U.S.A.</i>                                |
| 1899 Feb. 1.      | Dr. Augustus Frederick Rudolf Hærnle, Ph.D., C.I.E.<br><i>Oxford.</i>                                     |
| 1899 Dec. 6.      | Professor Edwin Ray Lankester, M.A., LL.D., F.R.S. <i>London.</i>                                         |
| 1899 Dec. 6.      | Sir George King, K.C.I.E., M.B., LL.D., F.L.S., F.R.S. <i>London.</i>                                     |
| 1899 Dec. 6.      | Professor Edward Burnett Tylor, D.C.L., LL.D., F.R.S.<br><i>Oxford.</i>                                   |
| 1899 Dec. 6.      | Professor Edward Suess, Ph.D., For. Mem. R.S. <i>Vienna.</i>                                              |
| 1901 Mar. 6.      | Professor J. W. Judd, C.B., LL.D., F.R.S. <i>London.</i>                                                  |
| 1902 Nov. 5.      | Monsieur R. Zeiller. <i>Paris.</i>                                                                        |

## CORRESPONDING MEMBER.

| Date of Election. |                                              |
|-------------------|----------------------------------------------|
| 1866 May 7        | Schlagintweit, Dr. Emil. <i>Zweibrücken.</i> |

## ASSOCIATE MEMBERS.

| Date of Election. |                                                         |
|-------------------|---------------------------------------------------------|
| 1874 April 1.     | Lafont, The Revd. E., C.I.E., S.J. <i>Calcutta.</i>     |
| 1875 Dec. 1.      | Bate, The Revd. J. D., M.R.A.S. <i>Kent.</i>            |
| 1875 Dec. 1.      | Abdul Hai, Maulavi. <i>Calcutta.</i>                    |
| 1882 June 7.      | Giles, Herbert. <i>Europe.</i>                          |
| 1884 Aug. 6.      | Moore, F., F.L.S. <i>Surrey.</i>                        |
| 1885 Dec. 2.      | Führer, Dr. A. <i>Europe.</i>                           |
| 1886 Dec. 1.      | Das, Rai Bahadur Sarat Chandra, C.I.E. <i>Calcutta.</i> |
| 1892 April 6.     | Samasrami, Satya Vrata. <i>Calcutta.</i>                |
| 1892 Dec. 7.      | Brühl, P. J. <i>Silbpur.</i>                            |
| 1899 April 5.     | Sanyal, Rai Bahadur Ram Brahma. <i>Calcutta.</i>        |
| 1899 April 5.     | Blandari, Visnu Prasad Raj. <i>Nepal.</i>               |
| 1899 Nov. 1.      | Francotte, The Revd. E., S.J. <i>Calcutta.</i>          |
| 1902 June 4.      | Franccke, The Revd. A. H. <i>Leh.</i>                   |

LIST OF MEMBERS WHO HAVE BEEN ABSENT FROM  
INDIA THREE YEARS AND UPWARDS.\*

\* *Rule 40.*—After the lapse of three years from the date of a member leaving India, if no intimation of his wishes shall in the interval have been received by the Society, his name shall be removed from the List of Members.

The following members will be removed from the next Member List of the Society under the operation of the above Rule:—

Dr. Frank Gerard Clemow, M.D. (Edin).  
 Sir Alfred W. Croft, M.A., K.C.I.E.  
 Lieut. M. Ll. Ferrar, I.A.  
 A. J. Grant, Esq., I.C.S.  
 W. Hoey, Esq., PH.D., I.C.S. (retired).  
 C. D. Mangos, Esq.  
 John Mann, Esq., M.A.  
 The Revd. Dr. James Edward Cowell Welldon, D.D.  
 Captain Charles E. Williams, I.M.S.

#### LOSS OF MEMBERS DURING 1903.

##### BY RETIREMENT.

A. F. M. Abdur Rahman, Esq.  
 Lieut.-Col. Charles Henry Ellison Adamson, I.A.  
 Lieut.-Col. G. F. A. Harris, I.M.S.  
 Col. Thomas Holbein, Hendley, C.I.E., I.M.S.  
 Lucas White King, Esq., B.A., LL.B., C.S.I., I.C.S.  
 Albert Bermingham Miller, Esq., B.A.  
 J. C. Mitra, Esq., M.A., B.L.  
 The Revd. Herbert Octavius Moore, M.A.  
 Dr. F. Noetling.  
 E. Seymour Wood, Esq.

##### BY DEATH.

##### *Ordinary Members.*

M. N. Chatterjee, Esq.  
 William Brown Colville, Esq.  
 William Common, Esq., C.E.  
 Babu Ram Din Singh.

##### *Honorary Member.*

Professor Edward Bayles Cowell, D.C.L.  
 Sir George Gabriel Stokes, Bart, M.A., D.C.L., F.R.S.

##### BY REMOVAL.

##### *Under Rule 9.*

Abdur Rahim, Esq.  
 Nawab M. M. Hosein Khan.

##### *Under Rule 40.*

Dr. Paul Deussen.  
 G. W. Forrest, Esq., B.A.  
 Oscar Trefftz, Esq.

[APPENDIX.]

ABSTRACT STATEMENTS  
OF  
RECEIPTS AND DISBURSEMENTS  
OF THE  
ASIATIC SOCIETY OF BENGAL  
FOR  
THE YEAR 1903.

1903.

# STATEMENT

## Asiatic Society

### Dr.

#### TO ESTABLISHMENT.

|            |     |     |     |     | Rs.   | As. | P. | Rs.   | As. | P. |
|------------|-----|-----|-----|-----|-------|-----|----|-------|-----|----|
| Salaries   | ... | ... | ... | ... | 3,577 | 7   | 4  |       |     |    |
| Commission | ... | ... | ... | ... | 406   | 15  | 0  |       |     |    |
|            |     |     |     |     |       |     |    | 3,984 | 6   | 4  |

#### TO CONTINGENCIES.

|                             |     |     |     |     |     |    |   |       |   |   |
|-----------------------------|-----|-----|-----|-----|-----|----|---|-------|---|---|
| Stationery                  | ... | ... | ... | ... | 98  | 8  | 0 |       |   |   |
| Taxes                       | ... | ... | ... | ... | 884 | 4  | 0 |       |   |   |
| Postage                     | ... | ... | ... | ... | 420 | 2  | 0 |       |   |   |
| Freight                     | ... | ... | ... | ... | 65  | 10 | 9 |       |   |   |
| Meeting                     | ... | ... | ... | ... | 134 | 3  | 0 |       |   |   |
| Auditor's fee               | ... | ... | ... | ... | 100 | 0  | 0 |       |   |   |
| Registration fee            | ... | ... | ... | ... | 5   | 0  | 0 |       |   |   |
| Insurance fee               | ... | ... | ... | ... | 625 | 0  | 0 |       |   |   |
| Electric Punkhas and Lights | ... | ... | ... | ... | 142 | 4  | 0 |       |   |   |
| Gas Lighting                | ... | ... | ... | ... | 119 | 0  | 0 |       |   |   |
| Miscellaneous               | ... | ... | ... | ... | 640 | 0  | 4 |       |   |   |
|                             |     |     |     |     |     |    |   | 3,234 | 0 | 1 |

#### TO LIBRARY AND COLLECTIONS.

|                           |     |     |     |     |       |    |   |       |    |   |
|---------------------------|-----|-----|-----|-----|-------|----|---|-------|----|---|
| Books                     | ... | ... | ... | ... | 1,813 | 13 | 7 |       |    |   |
| Binding                   | ... | ... | ... | ... | 390   | 0  | 0 |       |    |   |
| Catalogue                 | ... | ... | ... | ... | 358   | 7  | 0 |       |    |   |
| Electric fittings         | ... | ... | ... | ... | 2,414 | 0  | 0 |       |    |   |
| Typewriter and Duplicator | ... | ... | ... | ... | 532   | 8  | 0 |       |    |   |
|                           |     |     |     |     |       |    |   | 5,508 | 12 | 7 |

#### TO PUBLICATIONS.

|                                                      |     |     |     |     |     |   |   |       |    |   |
|------------------------------------------------------|-----|-----|-----|-----|-----|---|---|-------|----|---|
| Journal, Part I                                      | ... | ... | ... | ... | 636 | 4 | 6 |       |    |   |
| Journal, Part II                                     | ... | ... | ... | ... | 878 | 8 | 3 |       |    |   |
| Journal, Part III                                    | ... | ... | ... | ... | 228 | 5 | 6 |       |    |   |
| Proceedings                                          | ... | ... | ... | ... | 647 | 9 | 0 |       |    |   |
|                                                      |     |     |     |     |     |   |   | 2,390 | 11 | 3 |
| To Printing charges of Circulars, Receipt-forms, &c. |     |     |     |     | ... |   |   | 153   | 11 | 0 |
| „ Personal Account (Writes-off and Miscellaneous)    |     |     |     |     | ... |   |   | 177   | 9  | 6 |

#### TO EXTRAORDINARY EXPENDITURE.

|                                      |     |     |     |     |     |    |   |         |   |   |
|--------------------------------------|-----|-----|-----|-----|-----|----|---|---------|---|---|
| Royal Society's Scientific Catalogue | ... | ... | ... | ... | 618 | 14 | 6 |         |   |   |
| Max Müller Memorial Fund             | ... | ... | ... | ... | 669 | 10 | 0 |         |   |   |
|                                      |     |     |     |     |     |    |   | 1,288   | 8 | 6 |
| Balance                              | ... | ... | ... | ... |     |    |   | 181,826 | 9 | 6 |
| Total Rs.                            |     |     |     |     |     |    |   | 198,564 | 4 | 9 |

No 1.

*of Bengal.**1903.***Cr.**

|                             | Rs. | As. | P.  | Rs.     | As. | P. |
|-----------------------------|-----|-----|-----|---------|-----|----|
| By Balance from last Report | ... | ... | ... | 175,538 | 11  | 3  |

**BY CASH RECEIPTS.**

|                                                                                                 |     |     |       |        |      |
|-------------------------------------------------------------------------------------------------|-----|-----|-------|--------|------|
| Publications sold for cash                                                                      | ... | ... | 259   | 0      | 0    |
| Interest on Investments                                                                         | ... | ... | 6,541 | 8      | 0    |
| Rent of Rooms on the Society's ground floor                                                     | ... | ... | 1,375 | 0      | 0    |
| Allowance from Government of Bengal for the Publication of Anthropological and Cognate subjects | ... | ... | 2,000 | 0      | 0    |
| Ditto from Government of Assam                                                                  | ... | ... | 1,000 | 0      | 0    |
| Miscellaneous                                                                                   | ... | ... | 179   | 8      | 6    |
|                                                                                                 |     |     |       | 11,354 | 11 6 |

**BY EXTRAORDINARY RECEIPTS.**

|                                                       |     |       |    |   |
|-------------------------------------------------------|-----|-------|----|---|
| Subscriptions to Royal Society's Scientific Catalogue | ... | 1,647 | 11 | 0 |
|-------------------------------------------------------|-----|-------|----|---|

**BY PERSONAL ACCOUNT.**

|                 |     |     |     |       |        |     |
|-----------------|-----|-----|-----|-------|--------|-----|
| Admission fees  | ... | ..  | ... | 544   | 0      | 0   |
| Subscriptions   | ... | ... | ... | 8,299 | 0      | 0   |
| Sales on credit | ... | ... | ... | 1,033 | 4      | 0   |
| Miscellaneous   | ... | ... | ... | 146   | 15     | 0   |
|                 |     |     |     |       |        |     |
|                 |     |     |     |       | 10,023 | 3 0 |

|           |     |         |   |   |
|-----------|-----|---------|---|---|
| Total Rs. | ... | 198,564 | 4 | 9 |
|-----------|-----|---------|---|---|

C. R. WILSON,  
*Honorary Secretary and Treasurer,*  
*Asiatic Society of Bengal.*

Examined and found correct.  
 MEUGENS, KING & SIMSON,  
*Auditors.*

## STATEMENT

### *1903. Oriental Publication Fund in Account*

Dr.

To CASH EXPENDITURE.

|                                                    |     |     |     | Rs.   | As. | P. | Rs.    | As. | P. |
|----------------------------------------------------|-----|-----|-----|-------|-----|----|--------|-----|----|
| Copying                                            | ... | ... | ... | 219   | 0   | 0  |        |     |    |
| Printing charges                                   | ... | ... | ... | 4,416 | 10  | 0  |        |     |    |
| Editing charges                                    | ... | ... | ... | 4,718 | 8   | 0  |        |     |    |
| Salaries                                           | ... | ... | ... | 1,531 | 10  | 8  |        |     |    |
| Freight                                            | ... | ... | ... | 68    | 9   | 0  |        |     |    |
| Stationery                                         | ... | ... | ... | 38    | 7   | 0  |        |     |    |
| Postage                                            | ... | ... | ... | 156   | 9   | 3  |        |     |    |
| Commission on collection                           | ... | ... | ... | 31    | 10  | 7  |        |     |    |
| Contingencies                                      | ... | ... | ... | 40    | 5   | 9  |        |     |    |
|                                                    |     |     |     |       |     |    | 11,551 | 6   | 3  |
| To Personal Account (Writes-off and Miscellaneous) |     |     |     | ...   |     |    | 7      | 3   | 8  |
| Balance                                            | ... |     |     | ...   |     |    | 11,241 | 3   | 8  |
| Total Rs.                                          |     |     |     |       |     |    | 22,799 | 13  | 7  |

## STATEMENT

### *Sanskrit Manuscript Fund in Account*

Dr.

To CASH EXPENDITURE.

|                         |     |     |     | Rs.   | As. | P. | Rs.    | As. | P. |
|-------------------------|-----|-----|-----|-------|-----|----|--------|-----|----|
| Salaries                | ... | ... | ... | 2,358 | 2   | 0  |        |     |    |
| Travelling charges      | ... | ... | ... | 833   | 13  | 6  |        |     |    |
| Postage                 | ... | ... | ... | 0     | 9   | 6  |        |     |    |
| Copying                 | ... | ... | ... | 22    | 1   | 0  |        |     |    |
| Purchase of manuscripts | ... | ... | ... | 1,868 | 15  | 0  |        |     |    |
| Contingencies           | ... | ... | ... | 263   | 6   | 0  |        |     |    |
|                         |     |     |     |       |     |    | 5,346  | 15  | 0  |
| Balance                 | ... |     |     | ...   |     |    | 6,387  | 14  | 8  |
| Total Rs.               |     |     |     |       |     |    | 11,734 | 13  | 8  |

## No. 2.

*with the Asiatic Society of Bengal. 1903.*

## Cr.

|                             |     |     |     | Rs.       | As. | P.  | Rs.    | As. | P. |
|-----------------------------|-----|-----|-----|-----------|-----|-----|--------|-----|----|
| By Balance from last Report | ..  | ... | ... |           |     |     | 11,535 | 15  | 7  |
| By CASH RECEIPTS.           |     |     |     |           |     |     |        |     |    |
| Government allowance        | ... | ... | ... | 9,000     | 0   | 0   |        |     |    |
| Publications sold for cash  | ... | ... | ... | 428       | 1   | 0   |        |     |    |
| Advances recovered          | ... | ... | ... | 82        | 6   | 9   |        |     |    |
|                             |     |     |     |           |     |     | 9,510  | 7   | 9  |
| By PERSONAL ACCOUNT.        |     |     |     |           |     |     |        |     |    |
| Sales on credit             | ... | ..  | ... |           |     |     | 1,753  | 6   | 3  |
|                             |     |     |     |           |     |     |        |     |    |
|                             |     |     |     | Total Rs. |     | ... | 22,799 | 13  | 7  |

C. R. WILSON,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.  
MEUGENS, KING & SIMSON,  
Auditors.

## No. 3.

*with the Asiatic Society of Bengal.*

## Cr.

|                             |     |     |     | Rs.   | As. | P.  | Rs.    | As. | P. |
|-----------------------------|-----|-----|-----|-------|-----|-----|--------|-----|----|
| By Balance from last Report | ... | ... | ... | ...   |     |     | 8,513  | 13  | 8  |
| BY CASH RECEIPTS.           |     |     |     |       |     |     |        |     |    |
| Government allowance        | ... | ... | ... | 3,200 | 0   | 0   |        |     |    |
| Publications sold for cash  | ... | ... | ... | 15    | 0   | 0   |        |     |    |
|                             |     |     |     |       |     |     | 3,215  | 0   | 0  |
| BY PERSONAL ACCOUNT.        |     |     |     |       |     |     |        |     |    |
| Sales on credit             | ... | ... | ... | ...   |     |     | 6      | 0   | 0  |
| Total Rs.                   |     |     |     |       |     | ... | 11,734 | 13  | 8  |

C. R. WILSON,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.  
MEUGENS, KING & SIMSON,  
Auditors.



XX

# 1903. STATEMENT Personal

Dr.

|                                                    |     |     | Rs.    | As. | P. | Rs.    | As. | P. |
|----------------------------------------------------|-----|-----|--------|-----|----|--------|-----|----|
| To Balance from last Report                        | ... | ... | ...    |     |    | 3,512  | 14  | 1  |
| To CASH EXPENDITURE.                               |     |     |        |     |    |        |     |    |
| Advances for purchase of Sanskrit Manuscripts, &c. | ... |     |        |     |    | 4,018  | 0   | 6  |
| To Asiatic Society                                 | ... | ... | 10,023 | 3   | 0  |        |     |    |
| „ Oriental Publication Fund                        | ... | ... | 1,753  | 6   | 3  |        |     |    |
| „ Sanskrit Manuscript Fund                         | ... | ... | 6      | 0   | 0  |        |     |    |
|                                                    |     |     |        |     |    | 11,782 | 9   | 3  |

Total Rs. ... 19,313 7 10

# STATEMENT Invest

Dr.

|                             |     |    |  | Value.  |     | Cost. |         |     |    |
|-----------------------------|-----|----|--|---------|-----|-------|---------|-----|----|
|                             |     |    |  | Rs.     | As. | P.    | Rs.     | As. | P. |
| To Balance from last Report | ... | .. |  | 188,300 | 0   | 0     | 188,104 | 2   | 7  |
| Total Rs.                   | ... |    |  | 188,300 | 0   | 0     | 188,104 | 2   | 7  |

| FUNDS.*         | PERMANENT. |     |    |         |     |    | TEMPORARY. |     |     |        |     |     | TOTAL<br>COST. |     |    |
|-----------------|------------|-----|----|---------|-----|----|------------|-----|-----|--------|-----|-----|----------------|-----|----|
|                 | Value.     |     |    | Cost.   |     |    | Value.     |     |     | Cost.  |     |     |                |     |    |
|                 | Rs.        | As. | P. | Rs.     | As. | P. | Rs.        | As. | P.  | Rs.    | As. | P.  | Rs.            | As. | P. |
| Asiatic Society | 147,500    | 0   | 0  | 147,043 | 6   | 8  | 39,400     | 0   | 0   | 39,721 | 5   | 11  | 188,764        | 12  | 7  |
| Trust Fund      | 1,400      | 0   | 0  | 1,339   | 6   | 0  | ...        | ... | ... | ...    | ... | ... | 1,339          | 6   | 0  |
|                 | 148,900    | 0   | 0  | 148,382 | 12  | 8  | 39,400     | 0   | 0   | 39,721 | 5   | 11  | 188,104        | 2   | 7  |

No. 4.

*Account.*

1903.

Cr.

|                             |     |     |     | Rs. | As. | P.  | Rs.    | As. | P. |
|-----------------------------|-----|-----|-----|-----|-----|-----|--------|-----|----|
| By Cash Receipts            | ... | ... | ... | ... | ... | ... | 11,334 | 5   | 6  |
| „ Asiatic Society           | ... | ... | ... | 177 | 9   | 6   |        |     |    |
| „ Oriental Publication Fund | ... | ... | ... | 7   | 3   | 8   |        |     |    |
|                             |     |     |     |     |     |     | 184    | 13  | 2  |

| By Balance.                              | Due to the Society. |     |    | Due by the Society. |     |    |
|------------------------------------------|---------------------|-----|----|---------------------|-----|----|
|                                          | Rs.                 | As. | P. | Rs.                 | As. | P. |
| Members ...                              | 4,484               | 3   | 2  | 115                 | 5   | 0  |
| Subscribers ...                          | 36                  | 1   | 0  | 6                   | 8   | 0  |
| Employés ...                             | 30                  | 0   | 0  | 350                 | 0   | 0  |
| Baptist Mission Press ...                | 3,346               | 2   | 0  | 0                   | 0   | 0  |
| Mr. A. E. Caddy for cleaning pictures .. | 500                 | 0   | 0  | 0                   | 0   | 0  |
| Miscellaneous...                         | 14                  | 8   | 0  | 144                 | 12  | 0  |
|                                          | 8,410               | 14  | 2  | 616                 | 9   | 0  |

... 7,794 5 2

Total Rs. ... 19,313 7 10

C. R. WILSON,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.  
MEUGENS, KING & SIMSON,  
Auditors.

No. 5.

*ment.*

Cr.

|              |     |     |     | Value. |         |    | Cost. |         |    |   |
|--------------|-----|-----|-----|--------|---------|----|-------|---------|----|---|
|              |     |     |     | Rs.    | As.     | P. | Rs.   | As.     | P. |   |
| By Balance * | ... | ... | ... | ...    | 188,300 | 0  | 0     | 188,104 | 2  | 7 |
| Total Rs.    |     |     |     | ...    | 188,300 | 0  | 0     | 188,104 | 2  | 7 |

C. R. WILSON,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.  
MEUGENS, KING & SIMSON,  
Auditors.

## STATEMENT

1903.

*Trust*

## Dr.

|                |    |     |     |     |     | Rs.   | As.   | P.    |
|----------------|----|-----|-----|-----|-----|-------|-------|-------|
| To Balance ... | .. | ... | ... | ... | ... | 1,434 | 11    | 10    |
| Total Rs.      |    |     |     |     |     | ...   | 1,434 | 11 10 |

## STATEMENT

*Cash*

## Dr.

|                                 |     |     |     |     |     | Rs.    | As. | P.  | Rs.    | As. | P. |
|---------------------------------|-----|-----|-----|-----|-----|--------|-----|-----|--------|-----|----|
| To Balance from last Report ... | ... | ... | ... | ... | ... | ...    | ... | ... | 5,357  | 3   | 8  |
| RECEIPTS.                       |     |     |     |     |     |        |     |     |        |     |    |
| To Asiatic Society ...          | ... | ... | ... | ... | ... | 13,002 | 6   | 6   |        |     |    |
| „ Oriental Publication Fund ... | ... | ... | ... | ... | ... | 9,510  | 7   | 9   |        |     |    |
| „ Sanskrit Manuscript Fund ...  | ... | ... | ... | ... | ... | 3,215  | 0   | 0   |        |     |    |
| „ Personal Account ...          | ... | ... | ... | ... | ... | 11,334 | 5   | 6   |        |     |    |
| „ Trust Fund ...                | ... | ... | ... | ... | ... | 49     | 0   | 0   |        |     |    |
|                                 |     |     |     |     |     |        |     |     | 37,111 | 3   | 9  |
| Total Rs.                       |     |     |     |     |     | ...    | ... | ... | 42,468 | 7   | 5  |

## STATEMENT

*Balance*

## Dr.

|                        |     |     |     |     |     | Rs.     | As. | P.  | Rs.     | As. | P. |
|------------------------|-----|-----|-----|-----|-----|---------|-----|-----|---------|-----|----|
| To Cash ...            | ... | ... | ... | ... | ... | 4,991   | 15  | 11  |         |     |    |
| „ Investments ...      | ... | ... | ... | ... | ... | 188,104 | 2   | 7   |         |     |    |
| „ Personal Account ... | ... | ... | ... | ... | ... | 7,794   | 5   | 2   |         |     |    |
|                        |     |     |     |     |     |         |     |     | 200,890 | 7   | 8  |
| Total Rs.              |     |     |     |     |     | ...     | ... | ... | 200,890 | 7   | 8  |

No. 6.

*Fund.*

1903.

Cr.

|                             |     |     |     | Rs. | As.   | P.    |
|-----------------------------|-----|-----|-----|-----|-------|-------|
| By Balance from last Report | ... | ... | ... | ... | 1,385 | 11 10 |
| „ Interest on Investment    | ... | ... | ... | ... | 49    | 0 0   |
| Total Rs.                   |     |     |     | ... | 1,434 | 11 10 |

C. R. WILSON,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.  
MEUGENS, KING & SIMSON,  
Auditors.

No. 7.

*Account.*

Cr. .

## EXPENDITURE.

|                             |     |    |    | Rs.    | As. | P.  | Rs.    | As. | P. |
|-----------------------------|-----|----|----|--------|-----|-----|--------|-----|----|
| By Asiatic Society          | ... | .. | .. | 16,560 | 1   | 9   |        |     |    |
| „ Oriental Publication Fund | ... | .. | .. | 11,551 | 6   | 3   |        |     |    |
| „ Sanskrit Manuscript Fund  | ... | .. | .. | 5,346  | 15  | 0   |        |     |    |
| „ Personal Account          | ... | .. | .. | 4,018  | 0   | 6   |        |     |    |
| Balance                     |     |    |    | ...    | ... | ... | 37,476 | 7   | 6  |
|                             |     |    |    | ...    | ... | ... | 4,991  | 15  | 11 |
| Total Rs.                   |     |    |    | ...    | ... | ... | 42,468 | 7   | 5  |

C. R. WILSON,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.  
MEUGENS, KING & SIMSON,  
Auditors.

No. 8.

*Sheet.*

Cr.

|                             |     |     |     | Rs.     | As. | P.  | Rs.     | As. | P. |
|-----------------------------|-----|-----|-----|---------|-----|-----|---------|-----|----|
| By Asiatic Society          | ... | ... | ... | 181,826 | 9   | 6   |         |     |    |
| „ Oriental Publication Fund | ... | ... | ... | 11,241  | 3   | 8   |         |     |    |
| „ Sanskrit Manuscript Fund  | ... | ... | ... | 6,387   | 14  | 8   |         |     |    |
| „ Trust Fund                | ... | ... | ... | 1,434   | 11  | 10  |         |     |    |
|                             |     |     |     | ...     | ... | ... | 200,890 | 7   | 8  |
| Total Rs.                   |     |     |     | ...     | ... | ... | 200,890 | 7   | 8  |

C. R. WILSON,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.  
MEUGENS, KING & SIMSON,  
Auditors.



CORRECTIONS IN PROCEEDINGS FOR FEBRUARY.

Page 22, line 8, *for* Bolton *read* Pargiter.

Page 24, line 22, *for* one of our Vice-Presidents *read* our President.



PROCEEDINGS  
OF THE  
ASIATIC SOCIETY OF BENGAL.  
FOR MARCH, 1904.

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The Monthly General Meeting of the Society was held on Wednesday, the 2nd March, 1904, at 9 P.M.

C. LITTLE, Esq., M.A., in the chair.

The following members were present :—

Mr. R. P. Ashton, Mr. J. Bathgate, Mr. D. Hooper, Mr. V. H. Jackson, Mr. J. Macfarlane, Dr. M. M. Masoom, Pandit Yogesa Chandra Sastree, Dr. C. Schulten, Mahamahopadhyaya Haraprasad Shastri, Pandit Jogindra Nath Vidyabhushan, Pandit Satis Chandra Vidyabhushan, Mr. E. Vredenburg, Dr. C. R. Wilson.

*Visitor*:—Mr. W. J. A. Cunningham.

The minutes of the last meeting were read and confirmed.

Twenty-seven presentations were announced :—

Kumar Kamlananda Singha, Mr. W. H. Arden Wood, Mr. A. W. Pim, and Prof. E. J. Rapson, were ballotted for and elected Ordinary Members.

Prof. H. Kern, Dr. Ramkrishna Gopal Bhandarkar, Dr. M. J. DeGoeje, Dr. Ignaz Goldziher, Sir Charles Lyall, and Sir William Ramsay, were ballotted for and elected Honorary Members.

The General Secretary read the names of the following gentlemen who had been appointed to serve on the various Committees for the present year.



## FINANCE AND VISITING COMMITTEE.

Dr. T. Bloch, The Hon. Mr. A. Earle, Mr. H. H. Risley, Mahamahopadhyaya Haraprasad Shastri, Dr. E. D. Ross, The Hon. Dr. Asutosh Mukhopadhyaya, Mr. J. Bathgate, Mr. H. E. Kempthorne, Major A. Alcock, I.M.S., Mr. T. H. Holland, Mr. W. K. Dods.

## LIBRARY COMMITTEE.

Dr. T. Bloch, Mr. D. Hooper, Mr. C. W. McMinn, The Hon. Dr. Asutosh Mukhopadhyaya, Mahamahopadhyaya Haraprasad Shastri, Mr. E. Thornton, Dr. H. H. Mann, Dr. E. D. Ross, Mr. I. H. Burkill, Mr. E. Vredenburg.

## PHILOLOGICAL COMMITTEE.

Maulavi Ahmad, Dr. T. Bloch, Babu Pratap Chandra Ghosha, Shams-ul-Ulama Mahomed Shaikh Gilani, The Hon. Dr. Asutosh Mukhopadhyaya, Major D. C. Phillott, I.A., Pandit Satyavrata Samasrami, Mahamahopadhyaya Haraprasad Shastri, Mahamahopadhyaya Chandra Kanta Tarkalankara, Dr. G. Thibaut, Babu Nagendra Nath Vasu, Mr. A. Venis, Dr. E. D. Ross, Mr. F. A. Gait, Pandit Satis Chandra Vidyabhushan, Babu Monmohan Chakravarti.

## COINS COMMITTEE.

Lt.-Col. D. S. E. Bain, I.M.S., Dr. T. Bloch, The Hon. Sir J. A. Bourdillon, Babu Panchanan Mukerjee, Mr. E. Thurston, Mr. M. J. Seth, Mr. H. N. Wright, Dr. E. D. Ross, The Hon. Mr. A. Earle, The Hon. Mr. John Hooper.

The General Secretary reported the death of Dr. Mahendralal Sircar, an Ordinary Member of the Society.

At the request of the Council, the Hon. Dr. Asutosh Mukhopadhyaya contributed the following obituary notice of Dr. Mahendralal Sircar :—

The Society has lost by the death of Dr. Mahendra Lal Sircar, C.I.E., one of its oldest members. Dr. Sircar was born on the 2nd November, 1833 in Paikpara, near Howrah. After a distinguished scholastic career, in the Hare School and the Hindu College, he joined the Calcutta Medical College in 1854, where his career was exceptionally brilliant. In 1863, he was admitted to the degree of Doctor in Medicine. It is not necessary to refer in detail to his conversion to the Homeopathic faith and his consequent ostracism from orthodox Medical Society. He remained a staunch Homeopath to the end of his days and published numerous

writings in the Calcutta Journal of Medicine which he started in January 1868, and continued to edit for thirty-six years. In 1869, Dr. Sircar published a paper on the desirability of a national institution for the cultivation of the Physical Sciences by the natives of India, and it was through his unceasing efforts that the Indian Association for the cultivation of Science was founded six years later at a time when even Government Institutions hardly made adequate provision for the practical teaching of Science. Dr. Sircar continued to be the Secretary of the Institution till the day of his death, and so long as health permitted, systematically delivered courses of lectures there. Dr. Sircar was appointed a Fellow of the Calcutta University in 1870, and was for many years an active member of the Senate, directing his efforts mainly to secure for the experimental sciences a proper recognition amongst the studies of the University. He was for ten years a member of the Syndicate, for four years President of the Faculty of Arts and acted on several occasions as an examiner in scientific subjects for the M.A. and M.D. Examinations. In 1898 the University conferred on him the Honorary Degree of Doctor in Law, in recognition of his services to the cause of scientific education. He was made a C.I.E. in 1883, was appointed Sheriff of Calcutta in 1887, and was nominated by Government a member of the Bengal Legislative Council on four successive occasions. He was a Justice of the Peace and Presidency Magistrate from 1877, and for many years took an active part as a Municipal Commissioner in the Corporation of Calcutta. He maintained for many years a Charitable Homeopathic Dispensary, where he gave advice and medicine free to all classes and creeds; and more than ten years ago he founded a Leper Asylum at Deoghur.

He joined the Society in April 1867, served on the Council for eleven years between 1885 and 1901, and at the time of his death, was one of the Trustees of the Indian Museum on behalf of the Society.

The General Secretary reported the presentation of one coin from the Government of United Provinces of Agra and Oudh.

Pandit Yogesa Chandra Sastree exhibited an image of Manju Nath brought from Lhasa (Tibet), and also copper-plate grants from Rajputana and Guzarat.

This image of Manju Nath, otherwise called Manju Deva or Manju Sree, has been handed over to me by one of my European friends who secured it through a Lama from Lhasa in Tibet. It is a Buddhist deity generally worshipped by the Newars of Nepal.

It is stated in the 7th chapter of the Brihat Swayambhupuran that a sage named Manjusree came from China to the Swayambhu-

kshetra in Nepal and attained salvation there. He was afterwards worshipped as a god by several trading people who were Bonddhas. A full account of Manju Nath can be found in the book mentioned above, an Ms. copy of which exists in the Library of the Asiatic Society of Bengal.

On the pedestal of this image, it is inscribed that one Punabanta, who was a Tuladhar by caste and an inhabitant of **हिंडोल बादाचोया** died at Lhasa. His living wife, named **इन्दुलचौ**, founded this image of Manju Nath in her own and husband's name on the 15th Phalgun of the 943 Nepali era (i.e., in February, 1823 A.D.).

The image has got three heads and six hands. In two of three right hands there are—a sword, an arrow, while the third is offering aboon. In the three left hands there are—a book in the first, a bow in the second, and in the third the foot stalk of a lotus flower which is broken.

There is a female figure on the left side of the lap of this image of Manju Nath which can be presumed to be that of his wife. The two figures sitting on the pedestal in a worshipping position are females. Their names **पुणमनि** and **दयामनि** (virtuous mind and merciful mind).

The language of the inscription is a mixture of Sanskrit and Newari. The latter is a dialect of the hill tribes of Nepal and entirely unconnected with the former. The alphabets are also not purely Devanagri nor Newari but a mixture of the both.

The image, it seems to me, is made of gilt brass. The gilding is of a high order and is a proof of the antiquity of the image.

My same European friend gave me both of these copper-plate grants.

The language of the inscription in plate No. 1 is a mixture of Sanskrit and Marwari, and the characters are mostly Devanagri and occasionally Marwari. The inscription is deeply incised, and legible. Its size is  $8\frac{1}{2}$  inches by 7 inches.

The inscription is to the effect that Kubar Durjana Singhajee, son of Kubar Guman Singhajee and grandson of Maharao Siva Singhajee of Sirohi granted a village named (perhaps) **पिउबारा** to the shrine of **रोणकोइजौ** i.e., **श्रीलक्ष्म** for the purpose of establishing a vandara (inn) in connection with his temple to distribute food to the poor. The grant was made on the 5th Aswin of 1897 (Bikram's era) i.e., in September, 1843 A.D.—14 years before the mutiny.

I found the name of Maharao Siva Singhajee in Hunter's Gazetteer to be the ruler of Sirohi State, who rendered a great deal of help to the British Government during the mutiny of 1857. It is not improbable that he is the man whose name we find in the inscription. Attempts are being made through the Governor-General's agent in Rajputana to throw further light on this grant. The inscription has an incorrect

Sanskrit verse at the end of it; which, when translated into English, runs thus:—"He who confiscates the land gift made either by himself or by someone else, lives in hell as long as the sun and moon endure."

The language of the inscription of the plate No. 2 is a mixture of Sanskrit and Guzerati, and the characters are Devanagiri and Guzerati, and except in two or three places, are deeply cut and legible. Its size is  $8\frac{3}{4}$  inches by  $7\frac{1}{4}$  inches.

The inscription of this plate is to the effect that one Bai Sree Maha Kubar Bai made over a village named Mernojeshinagar to the shrine of Radhajee, whose temple is situated in the Islands of Dwaraka for the same purpose as that of the plate No. 1. The grant was made on the 7th Magha 1813 (Bikram's era) i.e., January, 1757 A.D.—4 months before the battle of Plassey.

The inscription of this plate also has an incorrect Sanskrit verse at the end of it containing 4 lines; the last two of which say the same thing as the plate No. 1; but the first two lines if translated into English would be: "He, who protects the land gift made either by himself or by any one else, lives in heaven as long as the sun and moon endure."

The following papers were read:—

1. *Mahals in Sarkar Lakhnau*.—By H. R. NEVILL, I.C.S.

(Abstract.)

In the Journal of the Asiatic Society of Bengal for 1884 there appeared an article by Mr. J. Beames 'On the Geography of India in the Reign of Akbar,' in which he dealt with the *mahals* and *sarkars* of the *subah* of Awadh as recorded in the *Ain-i-Akbari*.

Mr. Nevill is attempting to complete the work of Mr. Beames. The present paper relates only to the *sarkar* of Lakhnau.

Mr. Nevill rejects the view that Tara Singhaur is now included in the *pargana* of Daundia Khera. Tara Singhaur he identifies with a village called Singhaur Tara on the banks of the Ganges some seventeen miles south-east of Daundia 'Khera, lying in latitude  $26^{\circ} 3'$  north and longitude  $80^{\circ} 53'$  east. Kahanjara is the village of Khanjar or Kahenjar in the north of *pargana* Sareni, in latitude  $26^{\circ} 11'$  north and longitude  $80^{\circ} 49'$  east. Lashkar is the modern village Nisgarh, also in *pargana* Sareni, in latitude  $26^{\circ} 6'$  north and longitude  $80^{\circ} 46'$  east. Deorakh is the hamlet now called Deorakhār in the centre of *pargana* Sareni. Haihar still gives its name to a small estate in Rai Bareli, in the north-west of *pargana* Dalman, four miles east of Lalganj. Kumbhi must be fitted into the Parwa *tahsil* of the Unao district, in *pargana* Mauranwam. Lastly, Pingwān or Bangwān is Bangawān in the Sadarpur *pargana* of Sitapur. This clears up the whole geography of the *sarkar*.

2. *Materials for a Flora of the Malayan Peninsula*, No. 15.—By SIR GEORGE KING, K.C.I.E., LL.D., F.R.S., &c., late Superintendent of the Royal Botanic Garden, Calcutta, and MR. JAMES SYKES GAMBLE, M.A., C.I.E., F.R.S., late of the Indian Forest Department.

(Abstract.)

The present paper contains practically the completion of the account of the large National order *Rubiaceæ*. Owing to an accident, it has unfortunately been found necessary to postpone the publication of the descriptions of the species of the genus *Psychotria* (numbering about 45) until the next paper of the present series. A key is here given to the remaining twenty-three genera of the family, the key to the first thirty having appeared in the last paper. In all 123 species, belonging to 22 genera, are now described; and, of these, 47 species are believed to be new to Science.

3. *The Buddhist Doctrine of "Middle Path."*—By PANDIT SATIS CHANDRA VIDYABHUSHAN, M.A. The paper will not be published.

(Abstract.)

The pandit explains the doctrine of the 'middle path' from two standpoints, ethical and metaphysical. Ethically the middle path consists in the avoidance of the two extremes of excessive self-indulgence and excessive self-mortification; metaphysically it consists in the avoidance of the two extremes of a belief in the reality of the world and a belief in its unreality. The world only appears to exist in virtue of conditions or relations. The relations are of four kinds: the causal condition as in the relation of the seed to the germ; the supporting condition as in the relation of fuel to fire; the condition of succession as between prior and posterior events; and the defining condition as in the relation of the eye to colour.

4. *Evidences of Slave trade in Moghul Empire.*—By MAHAMAHOPADHYAYA HARAPRASAD SHASTRI, M.A.

5. *Shoulder-headed and other forms of stone implements in the Santal Parganas.*—By REV. P. O. BODDING.

(Abstract.)

Mr. Bodding describes five new forms of stone implements found in the Santal Parganas.

1. Some wedge-shaped axes curved in a peculiar manner, the upper side being convex and the other concave.

2. Implements with squar eside edges, which used to be thought very rare in India.

3. A small oblong flat stone, the edge of which has been cut with small notches and which has probably done service as a saw.

4. Perforated stones, all of sandstone.

5. The 'shoulder-headed' celts of chert and sandstone. Some of them have two small notches, continuing a line down along each side of the neck down into the body of the stone. These notches are clearly marks left by the manufacturer, and show that the neck has been at least partially cut. The late Mr. Peal, arguing from the resemblance between these shoulder-headed celts and a kind of small iron hoe used in some Naga villages in weeding the hill paddy, assumed that the celts were miniature hoes. Mr. Bodding thinks it equally likely that they may have been adzes. The fact that these cherts are found in the Malayan peninsula and in Chota Nagpur does not show that the present inhabitants of the two regions are connected. It shows that in a former age the same people have either been living in them, or there has been some kind of intercourse between the countries.

6. *Himalayan Summer Storm of September 24th, 1903, and the weather immediately subsequent to that date in Northern India*—By C. LITTLE, M.A.

(Abstract.)

The paper on the Himalayan Summer Storm of September 24th, 1903, and the weather immediately subsequent to that date in Northern India, is the third of a series dealing with similar occurrences during the past two years. Of these occurrences, which have been called Himalayan Storms, because they are first observed in the region of the Himalayas, two striking examples belong to the monsoon season of 1902, and are dealt with in a paper entitled "Two remarkable Rainbursts in Bengal." Two still more remarkable examples belong to the monsoon season of 1903, and it is the latter of these that is discussed in this paper.

Extracts are quoted from the *Englishman* and *Pioneer* to show the character of the weather in Northern India during the latter half of September and the extraordinary change that began in Bengal about the 24th September. Father Francotte closed the usual weekly weather report in the *Englishman* on September 15th with the remark—"This year, 1903, there seems therefore to be greater fear for a speedy termination of the rainy period," and in the *Pioneer* of September 28th there occurred the following remark:—"The sky is becoming clear all over Upper India and fine weather is now promised by the Meteorological Department."

Ten days later the *Pioneer* wrote as follows : " On the 26th or 27th September the Meteorological Bureau seems to have arrived at the conclusion that fine weather conditions were becoming established over Upper India just on the eve of one of the most heavy and prolonged bursts of rainfall that can ever have been recorded so late in the year. Even now the daily telegrams seem to shew no appreciation of the extraordinary character of the season, &c."

It is pointed out in the paper that the subordinates of the Weather Bureaus who issued the warnings thus criticised had no alternative on the present system of looking towards the sea region to the South of India for all changes in the monsoon rainfall. Also that in this as in previous cases of the same kind exceptionally fine settled weather prevailed over the southern sea and the Bay of Bengal just before the commencement of the period of heavy rainfall, and that there was no appearance of a cyclonic storm of even slight intensity having entered Northern India until the second stage of the disturbance. On the other hand it is pointed out that in the North of Bengal, at a time when weather was fine in the South, thunderstorms began and spread southwards over Bengal. They first occurred in Assam and the Darjeeling Himalayas on the 23rd or 24th, in support of which there is recalled the experience of Puja holiday-seekers who left Calcutta in fine weather and found the Darjeeling railway badly breached. The thunderstorms spread southwards, and the change occurred in Lower Bengal on the evening of the 25th. A temperature tracing is given showing the thunderstorms of the 25th and 26th at Calcutta, and the subsequent gradual formation of a depression over Lower Bengal. This depression was most marked on the 29th, after which it moved westward and recurving in Central India towards the United Provinces caused the commencement of the heavy burst of belated rainfall which called forth the criticism of the *Pioneer* already quoted.

It has been proved in these papers that such an occurrence as what is called a Himalayan storm is followed by remarkable series of depressions over the north of the Bay, a striking example being the series which saved Western India from crop failure in August 1902. On this occasion two depressions formed ; the first has been already mentioned. The second formed a week later, and following an almost identical course, maintained the rainfall in the United Provinces.

Brief quotations are given from the writings of Mr. H. F. Blanford and Sir J. Eliot to show that on the system introduced by the latter it was impossible to foresee the change which then began, because on that system all such changes are initiated over the southern seas, and on this

occasion weather remained exceptionally fine for the season in that area. But Mr. Blanford discovered more than twenty years ago that to forecast rainfall in northern India something more than the report from ground-level observatories is wanted. "What is more especially wanted now is a knowledge of the prevailing movements of the higher atmospheric strata." Nothing more is known now of these upper atmospheric strata than when Mr. Blanford wrote, but in this paper it is maintained that the change which began at the end of September last was in the upper strata, and that the circumstances of the subsequent rainfall could not have been foreseen without a knowledge of these strata—an opinion which the quotations from Sir J. Eliot's writings show was, in all probability, not shared by him. The paper closes with short tables of meteorological statistics showing the progress of the disturbance over Bengal up to the commencement of the first depression. The tables are arranged, as in previous papers, to show that the same features were present as on the occasions therein referred to.

7. *Cyclone of 13th to 15th November, 1903, in the Bay of Bengal.*—*By C. LITTLE, M.A.*

(Abstract.)

The paper on the cyclone of 13th to 15th November in the Bay of Bengal is intended to show the importance of what is called 're-curving' in the more dangerous cyclones. Charts are given showing the tracks of two steamers, the 'Madura' from Calcutta to Rangoon and the 'Pentakota' from Rangoon to Calcutta, and the very curved path of the cyclone. The two steamers were on the outer edge of the storm at 8 A.M. on the morning of the 14th, and before midnight were involved in the central area of hurricane winds—the 'Madura' about 5 in the afternoon, the 'Pentakota' some hours later. The main object of the paper is to show that the rules laid down by Sir J. Eliot in the Handbook of Cyclonic Storms are of little assistance in enabling mariners to avoid the central area of a cyclone, that is of a severe cyclone, re-curving as up-to-date experience shows all severe cyclones to do. Both these ships during the 14th moved in a course more likely than any other to bring them near the central area, and this is the more striking in the case of the 'Madura' whose officers were engaged in a continued effort to apply the rules of the Handbook. The course of the 'Madura' on the chart and the narrative quoted in the paper show that those on board were unable to allow for re-curving until about 6 P.M., when the barometer began to rise and the centre had passed to the east of vessel. The opinion of the writer is given that this re-curving cannot be anticipated and allowed for by consideration of ground-level and sea-level obser-



vations; that at sea as on land where recurving is associated with striking differences in rainfall distribution, the phenomenon is probably connected with the character of the upper strata of the atmosphere. Quotations are given from the Indian Daily Weather Reviews, in which the statements are based strictly on the system introduced by Sir J. Eliot, to show that a very inadequate appreciation of the character of the storm was possible on that system, and that any warning which could have been issued from Simla must have been of a general and ill-defined character. The discussion shows that a failure to avoid the central area of a cyclone cannot, in the present state of our knowledge, be provided against by rules, and that until meteorologists have accounted for recurving the "full intelligence" of the mariner cannot be made a matter of question, as appears to be the case on the front page of the Handbook. It is incidentally pointed out that wireless telegraphy is not likely to be an aid in storm warning, as experience has shown that it cannot be relied on when thunder is occurring—an invariable accompaniment of cyclonic weather in the Bay. American Meteorologists have tried it and have given it up. They are now going on laying cables between the mainland and islands a short distance from the coast. The Telegraph Department in India have stated in their last administration report that wireless telegraphy fails when the the atmosphere is electrically disturbed. The only apparent method of investigation is that suggested by Mr. Blanford more than twenty years ago, a suggestion of enquiry into the upper strata which is now the main line of investigation carried on by the United States Weather Bureau, and a method of enquiry for which the area comprising Lower Bengal and the North of the Bay gives every prospect of success.

## LIBRARY.

THE following books have been added to the Library from January to March, 1904.

AIYÂDGÂR-I-ZARIRÂN, Shatrôihâ-i-Airân, and Afdiya va Sahigiya-i-Sistân. Translated with notes by Jivanji Jamshedji Modi. *Bombay*, 1899. 8°

*Presd. by the Trustees of the Parsee Punchayet Funds  
and Properties, Bombay.*

AL-BATTÂNÎ SIVA ALBATENII OPUS ASTRONOMICUM. Ad fidem codicis escurialensis Arabico editum latine versum, adnotationibus instructum a Carolo Alphonso Nallino. *Mediolani Insubrum*, 1903. 4°

*In progress.*

*Pubblicazioni del Reale Osservatorio di Brera in Milano.*

*Presd. by the Reale Osservatorio de Brera in Milano.*

AMEER ALI, Syed. The Spirit of Islam, or the life and teachings of Mohammed. *Calcutta*, 1902. 8°

ARDA VIRAF NAMEH. The original Pahlavi text, with an introduction, notes, Gujarati translation, and Persian version of Zartosht Behram in verse. By Dastur Kaikhusru Dastur Jamaspji Jamasp Asa. *Bombay*, 1902. 8°

• *Presd. by the Trustees of the Parsee Punchayet Funds  
and Properties, Bombay.*

ARNOTT (M. H.) Report with photographs of the repairs executed to some of the principal temples at Bhûbânêsvâr and caves in the Khândâgiri and Udaigiri Hills, Orissa, India, between 1898 and 1903. *London*, 1903. Obl.

*Presd. by the Government of Bengal.*

BARAD TANAH DJAWI, in proza. Javaansche Geschiedenis loopende tot het Jaar 1647 der Javaansche Jaartelling. Uitgegeven door J. J. Meinsma. 's-Gravenhage, 1903. 8°

*In progress.*

*Presd. by the Koninklijk Instituut voor de Taal-, Land- en Volkenkunde van Nederlandsch-Indië.*



**Bailey (F. Manson)** Contributions to the Flora of British New Guinea  
[Brisbane, 1903.] fol.

*Presd. by the Author.*

**Bald (Claud)** Indian Tea : its culture and manufacture, etc. Calcutta,  
1903. 8°

**Beazley (C. Raymond)** On an hitherto unexplained manuscript of  
John de Plano Carpini. [London, 1902.] 8°

*From "the Geographical Journal."*

*Presd. by the Government of India, Home Department.*

**Bertrand (C.-Eg.)** Les Coprolithes de Bernissart. Première partie.  
Les Coprolithes qui ont été attribués aux Iguanodons. Bruxelles,  
[1903.] 4°

*Extrait des Mémoires Muséum Royal d'Histoire Naturelle de Belgique.*

*Presd. by the Muséum.*

**Bevan (Edwyn Robert)** The House of Seleucus...With plates and  
maps, 2 vols. London, 1902. 8°

**Boeck (Kurt)** Durch Indien ins verschlossene Land Nepal. Ethno-  
graphische und photographische Studienblätter, etc., Leipzig, 1903.  
8°

**BOMBAY RECORD OFFICE.** Press List of Ancient Documents preserved  
in the Bombay Record Office, 1646-1700. [Bombay, 1903.] fol.

*Presd. by the Government of Bombay.*

**Bradley-Birt (F. B.)** Chota Nagpore : a little-known province of the  
Empire...With an introduction by the ..Earl of Northbrook...With  
...illustrations and a map. London, 1903. 8°

*Presd. by the Government of Bengal.*

**British Museum.** (Natural History). Catalogue of the Books,  
Manuscripts, Maps and Drawings in the British Museum, etc  
London, 1903. 4°

*In progress.*

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Catalogue of the collections of Palearctic Butter-  
flies formed by the late J. H. Leech, and presented to the ...  
British Museum by his mother Mrs. E. Leech. By R. South.  
London, 1902. 4°

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First Report on Economic Zoology by F. V.  
Theobald. London, 1903. 8°



**British Museum.** A Monograph of the Tsetse-flies—Genus *Glossina*, Westwood—based on the collection in the British Museum by E. E. Ansten. With a chapter on Mouth-parts by H. J. Hansen. London, 1903. 8°

*Presd. by the Museum.*

**Buchanan (Major Andrew)** Malarial Fevers and Malarial Parasites in India . . . Second edition, enlarged. Calcutta, 1903. 8°

**Buckley (Charles Burton)** An Anecdotal History of old times in Singapore . . . from . . . 1819 to . . . 1867. With portraits and illustrations. 2 vols. Singapore, 1902. 8°

**BUDDHAJĪVANACARITAM.** [A brief Hindi translation of Lalitavistara. Edited by Khunnilāla Sāstri.] Bareilly, [1903.] 8°

*Presd. by the Editor.*

**BUNDEHESH.** The Pahlavi Bundeshesh, lithographed by Maneckji Rustomji Unwalla. Bombay, 1897. 4°

*Presd. by the Trustees of the Parsee Panchayet Funds*

*and Properties, Bombay.*

**Burgess (James)** Digambara Jaina Iconography. Bombay, 1904. 4°  
*Reprinted from the "Indian Antiquary."*

*Presd. by the Author.*

**Butler (Alfred J.)** The Arab Conquest of Egypt and the last thirty years of the Roman Dominion. [With maps.] Oxford, 1902. 8°

**The CAMBRIDGE MODERN HISTORY.** Planned by . . . Lord Acton . . . Edited by A. W. Ward, . . . G. W. Prothero, S. Leathes. Cambridge, 1903, etc. 8°

*In progress.*

**Cassery (Capt. Gordon)** The Land of the Boxers, or China under the Allies. With . . . illustrations, etc. London, 1903. 8°

**Church (Percy W.)** Chinese Turkestan, with caravan and rifle. [With illustrations.] London, 1901. 8°

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## CONTENTS.

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|                                                                                                                                                                      | <i>Pages.</i> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Proceedings for January and February, 1903 (including<br>Annual Report) ...                                                                                          | 1-50          |
| Ditto    ,,   March, 1903   ...       ...       ...                                                                                                                  | 51-62         |
| Ditto    ,,   April       ,,       ...       ...       ...                                                                                                           | 63-90         |
| Ditto    ,,   May         ,,       ...       ...       ...                                                                                                           | 91-96         |
| Ditto    ,,   June        ,,       ...       ...       ...                                                                                                           | 97-104        |
| Ditto    ,,   July        ,,       ...       ...       ...                                                                                                           | 105-114       |
| Ditto    ,,   August     ,,       ...       ...       ...                                                                                                            | 115-120       |
| Ditto    ,,   November,,       ...       ...       ...                                                                                                               | 121-130       |
| Ditto    ,,   December,,   ...       ...       ...                                                                                                                   | 131-137       |
| List of Members of the Asiatic Society on the 31st December,<br>1902 (Appendix to the Proceedings for February, 1903)...       ...       ...                         | i-xiv         |
| Abstract Statement of Receipts and Disbursements of the<br>Asiatic Society for the year 1902 (Appendix to the<br>Proceedings for February, 1903)       ...       ... | xv-xxiii      |

---





# INDEX

TO

PROCEEDINGS, ASIATIC SOCIETY OF BENGAL

FOR 1903.

|                                | <i>Page.</i> |                                 | <i>Page.</i> |
|--------------------------------|--------------|---------------------------------|--------------|
| Abul Aas (Maulavi Syed) ...    | 63           | Bombay Branch of the Royal      |              |
| Abdul Alim ...                 | 28           | Asiatic Society                 | 92, 122      |
| Abdul Wali (Maulavi) 59,       | 100          | Bose (Rai Chuni Lal) ...        | 28           |
| Abdur Rahim ...                | 115          | Bourdillon (Hon. Sir J. A.)...  | 56           |
| Abdur Rahman (A.F.M.) ...      | 121          | British Association for the     |              |
| Adamson (Lient.-Col. C. H. E.) | 115          | Advancement of Science 64,      | 116          |
| Agencies ...                   | 7            | Burkill (I. H.) 27, 56, 97,     | 122          |
| Ahmad (Maulavi) ...            | 56           | Caddy (A.) ...                  | 27           |
| Alladand, spiral ring dug up   |              | Caddy (A. E.) ...               | 64           |
| at ...                         | 123          | Caterpillars, live ...          | 98           |
| Allan (Dr. A. S.) ...          | 121          | Cave, photograph of a ...       | 28           |
| Annual Address ...             | 15           | Ceylon Branch of the Royal      |              |
| " Meeting ...                  | 1            | Asiatic Society ...             | 122          |
| " Report ...                   | 2            | Chakravarti (Monmohan) ...      | 118          |
| Anthropological photographs    |              | Chalsa, dagger found near ...   | 56           |
| 64,                            | 116          | Chatterji (Rampoda) ...         | 92           |
| " Secretary,                   |              | Chota Nagpur, mills used by     |              |
| election of                    | 27           | ancient gold miners in ...      | 122          |
| Bain (Lient.-Col. D. S. E.)    | 56           | <i>Clania proe, crameri</i> ... | 116          |
| Barclay Memorial Medal ...     | 15           | Coin Cabinet ...                | 13           |
| Bathgate (J.) ...              | 27, 56       | Coins Committee, election of    | 56           |
| Beetles and grubs, Jute rope   |              | " presentation of 28,           |              |
| attacked by ...                | 98           | 64, 92,                         | 122          |
| Beveridge (H.) 123,            | 133          | Colville (W. B.) ...            | 121          |
| Bhattacharyya (Charu Chan-     |              | Congress of Orientalists,       |              |
| dra) ...                       | 116          | Hamburg ...                     | 67           |
| Bibliotheca Indica ...         | 15           | Connan (W.) ...                 | 61           |
| Bloch (T.) 27, 55, 56, 91,     | 131          | Copleston (Rt. Rev. Dr. R. S.)  | 121          |
| Bolton (Hon. Mr. C.W.) 27,     | 122          | Council Members, election of    | 27           |

|                                                       | Page.                 |                                                      | Page. |
|-------------------------------------------------------|-----------------------|------------------------------------------------------|-------|
| Cowell (Prof. E. B.) ...                              | 51                    | Hamburg, Congress of Orientalists. ...               | 67    |
| Dagger found near Chalsa ...                          | 56                    | Harris (Lt.-Col. G. F. A.) ...                       | 91    |
| Darjiling district, stone implements found in the ... | 122                   | Hendley (Col. T. H.) 27, 63,                         | 64    |
| Das (Bhawan) ...                                      | 28                    | Hill stations, meteorological observations at ...    | 93    |
| Das (Jamini Mohan) ...                                | 108                   | Holland (T. H.) 64, 106, 116,                        | 132   |
| De (Hari Nath) ...                                    | 97                    | Honorary Members, death of                           | 51    |
| Death of members 28, 51, 64,                          | 115, 121              | Hooper (D.) ... 56, 96,                              | 103   |
| Dey (Nundo Lall) ...                                  | 103                   | Hosein Khan (M. M.) ...                              | 121   |
| Discussion on papers ...                              | 122                   | Hughes-Buller (R.) ...                               | 29    |
| Doyal (Parmeshwar) ...                                | 75                    | Indian Museum ...                                    | 3     |
| Drake-Brockman (Major H. E.)                          | 28                    | Indo-Aryan Language, prosthetic g in an ...          | 125   |
| <i>Duonitus leuconotus</i> , Walker                   | 122                   | Insects ...                                          | 106   |
| Dutt (Girindranath) ...                               | 59                    | International Catalogue of Scientific Literature ... | 7     |
| Economic Entomology ...                               | 76                    | Irvine (W.) ...                                      | 134   |
| Edelston (T. D.) ...                                  | 121                   | Ito (Prof. C.) ...                                   | 121   |
| Edwards, (W. N.) 91,                                  | 89                    | Joint Philological Secretary, election of ...        | 27    |
| Election of members 28, 51,                           | 63, 91, 97, 105, 115, | Journal, Part I, report on ...                       | 11    |
| 121                                                   |                       | „ „ II, report on ...                                | 11    |
| Elliott Prize for Scientific Research                 | 15, 105               | „ „ III, report on ...                               | 13    |
| Exchange of Publications ...                          | 8                     | Jute rope attacked by beetles and grubs ...          | 98    |
| Faggot worm from Miraj ...                            | 97                    | Kemphorne (H. E.) 27,                                | 56    |
| Faunthorpe (J. C.) ...                                | 121                   | King (Sir George) ...                                | 99    |
| Finance ...                                           | 3                     | King (L. W.) ...                                     | 91    |
| „ and Visiting Committee, election of                 | 55                    | Kishengarh, sodalite from ...                        | 132   |
| Gage (Capt. A. T.) ...                                | 51                    | La Touche (T. H. D.) ...                             | 27    |
| Gait (E. A.) ... 27, 55, 56,                          | 122                   | Lefroy (H. M.) ...                                   | 105   |
| Gamble (J. S.) ...                                    | 99                    | Library, additions to the ...                        | 32    |
| Gastrell (General J. E.) ...                          | 28                    | „ Committee, election of                             | 56    |
| Ghosha (Pratap Chandra) ...                           | 56                    | „ open to members on Sundays ...                     | 116   |
| Gochi (Ekai Kawa) ...                                 | 118                   | „ report on ...                                      | 7     |
| Godfrey (Major S. H.) ...                             | 133                   | Life Member, death of a ...                          | 28    |
| Gordon, (Rev. E. M.) ...                              | 128                   | Little (C.) 75, 93, 112,                             | 118   |
| Goswami (Harikishore) ...                             | 122                   | Macfarlane (J.) 27, 116,                             | 122   |
| Grierson (G. A.) ...                                  | 125                   |                                                      |       |
| Gurdon (Major P. R. T.) ...                           | 99                    |                                                      |       |
| Hahn (Rev. F.) ...                                    | 31                    |                                                      |       |

*Index.*

141

|                                                | <i>Page.</i> |                               | <i>Page.</i> |
|------------------------------------------------|--------------|-------------------------------|--------------|
| Madras Branch of the Royal Asiatic Society ... | 122          | Oldham (R. D.) ...            | 27           |
| Mahomed Gilani (Shaikh) ...                    | 56           | O'Malley (L. S. S.) ...       | 30           |
| Maliah (Kumar Ramessur) ...                    | 27           | Papers, discussion on ...     | 122          |
| Mann (H. H.) ...                               | 56, 89       | „ read :—30, 31, 56, 59,      |              |
| Masoom (Dr. M. M.) ...                         | 115          | 75, 89, 90, 92, 94,           |              |
| Max Müller Memorial Fund                       | 8            | 96, 99, 100, 101,             |              |
| McLeod (Lieut.) ...                            | 28           | 102, 103, 108, 109,           |              |
| McMinn (C. W.) ...                             | 56           | 111, 112, 113, 118,           |              |
| Members, death of 28, 51, 64,                  |              | 119, 123, 124, 126,           |              |
| 115, 121                                       |              | 128, 129, 133, 134,           | 136          |
| „ election of 28, 51, 63,                      |              | Pargiter, (Hon. Mr. Justice   |              |
| 91, 97, 105, 115,                              | 121          | F. E.) 63, 106, 116,          | 122          |
| „ list of ...                                  | 2            | Pandran, photograph of a      |              |
| „ of Council, election of                      | 27           | cave at                       | 28           |
| „ withdrawal of 28, 51,                        |              | Peal (H. W.) ...              | 31           |
| 64, 91, 115, 121,                              | 131          | Pedler (A.) ...               | 27           |
| Memorial Fund to Dr. R.                        |              | Phillott (Major D. C.) ...    | 56           |
| Rost.                                          | 66           | Philological Committee, elec- |              |
| Metcorite ...                                  | 132          | tion of ...                   | 56           |
| Metecorological Observations                   |              | „ Secretary, elec-            |              |
| at Hill stations ...                           | 93           | tion of ...                   | 27           |
| Miller (A. B.) ...                             | 131          | Plants, Sundribun ...         | 107          |
| Mills used by ancient gold                     |              | Prain (D.) 89, 107, 124, 134, | 136          |
| miners in Chota Nagpur                         | 132          | Premises of the Society, pro- |              |
| Miraj, faggot worm from ...                    | 97           | posed sale of the ...         | 8            |
| Mitra (J. C.) ...                              | 51           | Presentations 27, 51, 63, 91, |              |
| Monthly General Meetings                       |              | 97, 105, 115, 121,            | 131          |
| 27, 51, 63, 91, 97, 105, 115,                  |              | President, election of ...    | 27           |
| 121, 131                                       |              | Proceedings, report on ...    | 10           |
| Moore (Rev. H. O.) ...                         | 91           | Prosthetic g in an Indo-      |              |
| Mukerjee (Panchanan) ...                       | 56           | Aryan Language ...            | 125          |
| Mukhopadhyaya (Hon. Dr.                        |              | Publications ...              | 9            |
| Asutosh) 27, 51, 56, 92,                       |              | Rai (Jamiat) 102, 111,        | 113          |
| 116, 122                                       |              | Ranking (Lieut.-Col. G.) ...  | 28           |
| Mukhopadhyaya (Mahendra                        |              | Re-organization of the Socie- |              |
| Nath.                                          | 116          | ty, proposed ...              | 8            |
| Natural History Secretary,                     |              | Risley (H. H.) 27,            | 55           |
| election of ...                                | 27           | Rogers (C. G.) ...            | 51           |
| Noetling (F.) ...                              | 121          | Rogers (Capt. L.) 27, 55,     | 132          |
| Obituary ...                                   | 51           | Ross (E. D.) 27, 56, 91, 106, |              |
|                                                |              | 131, 132                      |              |

|                              | Page. |                                | Page.    |
|------------------------------|-------|--------------------------------|----------|
| Ross (Major Ronald) ...      | 15    | Stone Implements found in      |          |
| Rost (Dr. R.), Memorial to   | 66    | the Darjeeling district ...    | 122      |
| Roy (Maharaja Jagadindra     |       | Sunder (D.) ...                | 102, 103 |
| Nath) ...                    | 105   | Sundribun plants ...           | 107      |
| Samasrami (Satyavrata) ...   | 56    | Tarkalankara (Chandra-         |          |
| Sanskrit Manuscripts, search |       | kanta.) ...                    | 56       |
| for ...                      | 15    | Tarkatirtha (Asutosh) ...      | 122      |
| Sastree, (Yogesa Chandra)    | 92    | Thibaut (Dr. G.) ...           | 56       |
| Scientific lectures 116,     | 122   | Thornton (E.) ...              | 56       |
| Scott (Lieut. B.) ...        | 28    | Thurston (E.) ...              | 56       |
| Sculptures, photographs      |       | Transliteration, system of ... | 122      |
| of ...                       | 64    | Tyson (J. T.) ...              | 56       |
| Secretaries and Treasurer 9, | 27    | United Provinces of Agra       |          |
| Seth (M. J.) ...             | 56    | and Oudh Government,           |          |
| Shaun (M. Churchill) ...     | 63    | coins presented by 28, 64,     | 92       |
| Shastri (Haraprasad) 27, 51, |       | Vasu (Nagendra Nath) ...       | 56       |
| 55,                          | 56    | Venis (A.) ...                 | 56       |
| Singapore Branch of the      |       | Vice-Presidents, election of   | 27       |
| Royal Asiatic Society ...    | 122   | Vidyabhushan (Satis Chan-      |          |
| Singh (Ram Din) ...          | 115   | dra) ...                       | 56       |
| Sinha (Harimohan) ...        | 31    | Vredenburg (E.) ...            | 132      |
| Simpson (J. Hope) ...        | 121   | Walsh (E. H.) 118, 122, 124,   |          |
| Sodalite from Kishengarh ... | 132   | 129,                           | 132      |
| Spiral ring dug up at Alla-  |       | Walton (Capt. J.) ...          | 30       |
| dand ...                     | 133   | Wilson (C. R.) 27, 92,         | 122      |
| Stebbing (W. P.) 55, 63, 76, |       | Withdrawal of members 28,      |          |
| 90, 94, 98, 101, 106, 109,   |       | 51, 64, 91, 115, 121,          | 131      |
| 116, 119, 122, 126,          | 132   | Wood (E. S.) ...               | 121      |
| Stokes (Sir G. G.) ...       | 51    | Wright (H. N.) ...             | 56       |



PROCEEDINGS  
OF THE  
ASIATIC SOCIETY OF BENGAL.

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FOR JULY AND AUGUST, 1904.

The Monthly General Meeting of the Society was held on Wednesday, the 6th July, 1904, at 9-15 P.M.

THE HON'BLE MR. JUSTICE F. E. PARGITER, B.A., I.C.S., President, in the chair.

The following members were present:—

Mr. R. P. Ashton, Dr. J. C. Bose, Mr. I. H. Burkill, Mr. T. H. Holland, Mr. D. Hooper, Mr. T. H. D. La Touche, Kumar Ramessur Maliah, Mr. H. H. Mann, Dr. M. M. Masoom, Dr. P. C. Ray, Captain L. Rogers, I.M.S., Pandit Yogesa Chandra Sastrec, Mahamahopadhyaya Haraprasad Shastri, Pandit Satis Chandra Vidyabhusana, Mr. E. Vredenburgh, Lieut.-Col. J. H. Tull Walsh, I.M.S.

*Visitors*:—Pandit Vindhyesvariprasad Dube, Mr. L. L. Fermor and Mr. H. E. Stapleton.

The minutes of the last meeting were read and confirmed.

Seventy-seven presentations were announced.

Maulavi Sayid Aulad Hasan, Mr. C. A. C. Streatfeild, Mr. W. S. Talbot, Mr. A. P. Charles, Mr. Muhammad Rafiq, Mr. Brajendra Nath De and Mr. R. O. Lees were ballotted for and elected Ordinary Members.

Dr. G. A. Grierson was ballotted for and elected an Honorary Member.

It was announced that Mr. A. Garrett had expressed a wish to withdraw from the Society.

The President announced that Captain L. Rogers, I.M.S., had been appointed to serve on the Finance Committee, in the place of Mr. J. Bathgate, resigned.

The President announced that the Council had appointed Babu Asutosh Dhar as cashier in the place of Babu Nitya Gopal Basu, retired on pension.

The General Secretary read the following circular letter from Messrs. Breitkopf & Härtel, relative to Popular Chants used at feasts or official ceremonies, and stated that the Council had resolved to take up the subject in connection with Journal Part III :—

*Leipzig, le 19 Mars 1904.*

MONSIEUR,

Le chant peut être considéré comme l'expression la plus parfaite de l'âme d'un peuple. Le mouvement actuel de la civilisation et de la science, qui tend à rapprocher les diverses nations, s'est fait sentir dans l'étude de la musique comme dans d'autres domaines, et l'on s'aperçoit chaque jour davantage de l'intérêt qu'offre l'examen comparatif des chants populaires et nationaux. C'est ainsi que l'Empereur d'Allemagne a fait rassembler les chants populaires allemands, autrichiens et suisses. C'est une tentative qu'il serait utile de poursuivre, en l'étendant à tous les pays et à toutes les races. Nous inspirant de cette idée, nous nous proposons de constituer un recueil des chants nationaux de tous les pays, qui ne serait plus une simple compilation comme on en a si souvent essayé, mais qui s'attacherait à retracer l'histoire du texte et de la musique de chaque hymne. Un recueil historique ainsi conçu permettrait d'embrasser d'un seul coup d'œil non seulement chaque chant national dans son développement isolé, mais encore le rôle actuel de la musique populaire dans l'histoire universelle. Nous avons chargé de la partie scientifique de cette entreprise Monsieur le Dr. H. Abert, de l'Université de Halle (Allemagne), qui est avantageusement connu par ses travaux sur l'histoire de la musique allemande, grecque et italienne.

Etant donné le puissant intérêt que présentent vos hymnes nationaux, nous nous permettons de vous prier de bien vouloir nous donner :

1° le texte de votre hymne national ou des chants populaires ayant une portée patriotique (exécutés dans les fêtes et cérémonies

officielles), et la traduction soit en français, en anglais, en allemand, en italien ou en espagnol ;

2° la musique de cet hymne dans la forme usitée chez vous. Dans le cas où il existerait, à côté de l'édition pour chant avec accompagnement d'un instrument, une autre avec accompagnement d'orchestre ou pour orchestre seul, cette dernière nous serait également bienvenue. Des éditions imprimées, lorsqu'il y en a, sont préférables aux copies. Nous vous serions reconnaissants de nous les envoyer, avec facture, ou de nous indiquer l'adresse de l'éditeur ;

3° l'histoire du texte et de la musique : nom de l'auteur et du compositeur ; les circonstances politiques ou sociales dans lesquelles les chants furent composés, et le sort qu'ils ont eu depuis leur publication.

Nous vous prions de bien vouloir nous fournir ces renseignements dans l'une ou l'autre des principales langues européennes mentionnées ci-dessus.

Nous osons espérer que vous voudrez bien nous aider à être aussi complets que possible, et que vos bonnes indications nous permettront de faire à vos chants nationaux la place qui leur revient dans un ouvrage comme celui que nous préparons.

Veuillez agréer, Monsieur, avec nos remerciements anticipés, l'assurance de notre considération distinguée.

BREITKOFF & HÄRTEL.

Prière d'adresser les communications à Monsieur le Dr. H. Albert, à l'Université de Halle s. Saale (Allemagne), Richard Wagner-Strasse 26.

The proposal to lend certain portraits and other objects of interest to the Victoria Memorial Hall for public exhibition there, of which intimation had already been given by circular to all members, was brought up for final disposal. The votes of the members were laid on the table and the President requested any members who had not expressed their opinion to take the present opportunity of filling in voting paper. Five such papers were filled in and with the 154 returned by members were scrutinized. The President appointed Messrs. T. H. D. La Touche and R. P. Ashton to be scrutineers. The Scrutineers reported as follows :—

|          |      |
|----------|------|
| For      | 127. |
| Against  | 31.  |
| Carried. |      |



Pandit Yogesa Chandra Sastree exhibited an image of Jvara (the god of fever).

This is the imago of Jvara (god of fever). This deity is commonly known in India by the name of *Jvarasura* and is worshipped by the Hindus when epidemic fever sets about in the country.

This image, like that of Manju Nāth, a Buddhist deity which I exhibited here before, has got three heads, having three eyes on each, six arms; but it differs from that deity in respect of its legs which are three in number. In three of its right hands there are—an arrow in the first, a battle-axe in the second, and a mace in the third. In the three left hands there are—a bow in the first, a rope in the second, and a pitcher in the third.

The use of these weapons, as it is generally known, is that when a person falls a victim to Jvara, he (gvara) binds him (victim) with his rope and beats him with his mace and cuts the victim's veins with his axe, after which he takes away the victim's blood in his pitcher. If the person try to run away he (Jvara) shoots him with his arrow.

As to the origin of this deity it is stated in most of the Purans and in *Charak*, *S'usrat* and other works of the Hindu medical science, that Jvara originated from the breath of *Rudra* who was angry at having been insulted by *Daksha*, the father-in-law of *S'iva*.

This version of the origin of Jvara may be considered irrational and unscientific at the first sight; but if carefully considered it would appear that the scientific and most rational explanation is involved in the very conception of it. Jvara is commonly defined by all the nosologists to be the heat of the body caused by irascible state of the three humours, viz., wind, bile and phlegm. Moreover, every one, when angry, conceives heat in his body, which also is a sort of (Jvara or fever). Hence it is obvious that the primary cause of Jvara fever) is anger as has been stated in the Purāṇs.

The following papers were read :—

1. *Totemism among the Khonds*—By J. E. FRIEND-PEREIRA, B.A.  
*Communicated by the Anthropological Secretary.*

2. *On a new Scirpus from Beluchistan and certain of its allies*.—By J. R. DRUMMOND, B.A., I.C.S.

The Monthly General Meeting of the Society was held on Wednesday, the 3rd August, 1904, at 9-15 P.M.

THE HON. MR. JUSTICE F. E. PARGITER, B.A., I.C.S., President, in the chair.

The following members were present :—

Mr. J. Bathgate, Mr. I. H. Burkill, Mr. T. H. Holland, Mr. D. Hooper, Mr. T. D. La Touche, Mr. H. H. Mann, Mr. C. Michie, Mr. C. S. Middlemiss, Mr. G. E. Pilgrim, Major D. Prain, I.M.S., Captain L. Rogers, I.M.S., Pandit Yogesa Chandra Sastree, Mr. G. H. Tipper, Pandit Satis Chandra Vidyabhusana, Mr. E. Vredenburg, Mr. J. Wyness.

Visitors :—Mr. N. Annandale, Mr. L. L. Fermor, and Mr. J. McNeil.

The minutes of the last meeting were read and confirmed.

Forty-eight presentations were announced :—

Mr. D. B. Parasnis, Major W. J. Bythell, R.E. and Mr. L. Leigh Fermor were balloted for and elected Ordinary Members.

It was announced that Mr. E. V. Gabriel has expressed a wish to withdraw from the Society.

The President announced that Mr. R. O. Lees had been elected a member of the Council in the place of Mr. C. R. Wilson, resigned.

Mr. E. Vredenburg exhibited specimens of fossil oysters and other marine shells obtained from excavations in Clive Street, Calcutta.

Mr. G. E. Pilgrim exhibited specimens of Pleistocene fossil bones obtained at about 80 feet below the Ganges river at Allahabad.

The following papers were read :—

1. *The Later Mughals (1707-1803)*.—By WILLIAM IRVINE, I.C.S., (retired).

(Abstract.)

This paper is a continuation of Mr. Irvine's articles on the Later Moghuls. It narrates the events during the short reigns of Rafia-d-Darajāt and Rafia-d-Daulah, who were set up as puppet kings in 1719 A.D. by the Sayyids after the assassination of Farrukhsiyar. The

narrative is carried up to the beginning of the reign of Muhammad Shâh.

2. *On Dioscorea birmanica—a new species from Burma, and two allied species.*—By MAJOR D. PRAIN, I.M.S., AND I. H. BURKILL.

(Abstract.)

A common wild yam of Burma is described under the name of *Dioscorea birmanica*. An ally from South-West China is described under the name of *D. yunnanensis*, and reference is made to a plant of Perak which also seems to be allied.

3. *Rusot: An ancient Eastern Medicine.*—By DAVID HOOPER.

(Abstract.)

Rusot, identified with the Lykion of the ancient Greeks, is an extract of the wood of several species of *Berberis*. Several examples preserved in the Indian Museum have been chemically examined, and are found variable in the amount of berberine and other matter which they contain.

4. *Notes on the Khasis, Syntengs and allied Tribes inhabiting the Khasi and Jaintia Hills District in Assam.*—By MAJOR P. R. T. GURDON, I.A.

(Abstract.)

The general appearance and mode of life of these tribes is described. They are matriarchal, the youngest daughter inheriting from the mother, or failing daughters, the youngest niece, or again failing daughters and nieces, the youngest female cousin. They propitiate the spirits of departed ancestors by sacrifice, and worship them by memorial stones. The Khasis are divided into clans named after natural objects (totems apparently not now worshipped). They marry in strict exogamy, the husband remaining of little account: he visits his wife for many years in her mother's house; he never becomes admitted into his wife's clan; divorce is easy, and the women enjoy considerable freedom in their sexual relations. It is remarkable that the sex of the Supreme Being is not definite in the ideas of these people, and that with their matriarchy in their worship, they call on spirits of both sexes, viz., the primeval ancestress of the family, the maternal great-uncle, and the great-grandfather. The birth, marriage, divorce, death and other ceremonies are described, and an account of the memorial stones given.

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## LIBRARY.

The following new books have been added to the Library from July to August 1904. The continuations of all the serials and works in progress have been received.

**Ahmad Hosain Khan, Munshi.** Khiaban-i-Akhlaq, or poems on moral subjects and objects of nature. [In Urdū.] *Lahore*, 1899. 8°.

*Presd. by the Author.*

**Barbé, Émile.** Le Nabab René Madec. Histoire diplomatique des projets de la France sur le Bengale et le Pendjab, 1772-1808, etc. *Paris*, 1894. 8°.

**Bezzi, M.** Empididi indo-australiani raccolti dal signor L. Biró. [*Budapest*, 1904.] 8°.

*Annales Musei Nationalis Hungarici, II, 1904.*

*Presd. by the Author.*

BOARD OF SCIENTIFIC ADVICE FOR INDIA. Annual Report for the year 1902-1903. *Calcutta*, 1904. fol.

*Presd. by the Govt. of India, Rev. and Agric. Dept.*

**Bretschneider, E.** History of European Botanical Discoveries in China. 2 vols. *London*, 1898. 4°.

**Brownell, Clarence Ludlow.** The Heart of Japan : glimpses of life and nature . . . With . . . illustrations. *London*, 1904. 8°.

**Charles-Roux, J.** L'Isthme et le Canal de Suez. Historique—état actuel . . . Avec . . . planches, etc. 2 tom. *Paris*, 1901. 8°.

**Cufino, L.** Contributo alla flora briologica del Canadà. [*Firenze*, 1903.] 8°.

*Estratto dal Bullettino della Società botanica italiana.*

——— Una nuova specie di *Erica* dell' Africa australe. [*Firenze*, 1903.] 8°.

*Estratto dal Bullettino della Società botanica italiana.*

*Presd. by the Author.*



**Oufno, L.** Un piccolo contributo alla flora micologica della Provincia di Napoli. *Napoli*, 1904. 8°.

*Presd. by the Author.*

**Cultru, Prosper.** Dupleix ; ses plans politiques, sa disgrâce. Étude d'histoire coloniale. *Paris*, 1901. 8°.

CULTURHISTORISCHE Studien unter Rückbeziehung auf den Buddhismus. [By A. Bastian.] I, etc. *Berlin*, 1900, etc. 8°.

The FAUNA and Geography of the Maldivo and Laccadive Archipelagoes. Being the account of the work carried on and of the collections made by an Expedition during the years 1899 and 1900. Edited by J. Stanley Gardiner. Vol. I, etc. *Cambridge*, 1902, etc. 4°.

FISHERIES OF NEW SOUTH WALES. Annual Report of Fisheries of New South Wales, 1902, etc. II. Fisheries Investigations and Fish culture. [Sydney, 1904, etc.] fol.

*Presd. by the Dept. of Fisheries, New South Wales.*

**Foucher, Henri.** Sur la frontière indo-afghane. Ouvrage contenant 15 gravures, etc. *Paris*, 1901. 8°.

**Haan, J. van Breda de.** Wortel-ziekte bij de peper op Java. *Batavia*, 1904. 8°.

*Presd. by the Botanic Institute of Buitenzorg.*

**Herzog, Maximilian.** A Fatal infection by a hitherto undescribed chromogenic bacterium : *Bacillus aureus foetidus*. *Manila*, 1904. 8°.

*Bureau of Government Laboratories, Manila, No. 13.*

*Presd. by the Bureau of Government Laboratories, Manila.*

HOLLAND.—*Commissie van advies voor 's Rijks Geschiedkundige Publicatien.* Overzicht van de door Bronnen—publicatie aan te vullen leemten der Nederlandsch Geschiedkennis. 's *Gravenhage*, 1904. 8°.

*Presd. by the Commissie van advies voor 's Rijks*

*Geschiedkundige Publicatien.*

**Joret, Charles.** La Flore de l'Inde d'après les écrivains grecs. *Paris*, 1901. 8°.

**Kay, S. P.** An English-Mikir Vocabulary with Assamese equivalents, to which have been added a few Mikir phrases. *Shillong*, 1904. 8°.

*Presd. by the Chief Commissioner of Assam.*



**Kielhorn, F.** Bruchstücke indischer Schauspiele in Inschriften zu Ajmere ... Mit 4 Tafeln. *Berlin*, 1901. 4°.

**Knapp, Georg Friedrich.** Justus von Liebig nach dem Leben gezeichnet. *München*, 1903. 4°.  
*Presd. by the K. B. Akademie der Wissenschaften zu München.*

**Kudo, Tozaburo.** The Ethics of Confucius. *Tokyo*, 1904. 8°.  
*Presd. by Yale University.*

**Laufer, Heinrich.** Beiträge zur Kenntnis der tibetischen Medizin. 2 Teile. *Berlin, Leipzig*, 1900. 8°.

**Lebedev, V.-T.** Russes et Anglais en Asie centrale. Vers l' Indo. Esquisse militaire statistique et stratégique. Projet de campagne russe ... Traduit du russe par le capitaine ... Avec 4 croquis et 1 carte. *Paris*, 1900. 8°.

**MARITIME TRADE OF BENGAL.** Report for the official year 1903-04, etc. *Calcutta*, 1904, etc. fol.  
*Presd. by the Government of Bengal.*

**Montelius, Oscar.** Der Orient und Europa. Einfluss der orientalischen Cultur auf Europa bis zur Mitte des letzten Jahrtausends v. Chr.... Deutsche Uebersetzung von J. Mestorf. Heft I, etc. *Stockholm*, 1899, etc. 4°.

**Müller, Right Hon. F. Max.** Contributions to the Science of Mythology. 2 vols. *London*, 1897. 8°.

**NORSKE GRADMAALINGS-KOMMISSION.** Resultater af Vandstands-Observationer paa den Norske Kyst. Hefte VI, etc. *Kristiania*, 1904, etc. 4°.  
*Presd. by the Norske Gradmaalings Kommission.*

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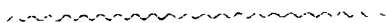
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“ It will flourish, if naturalists, chemists, antiquaries, philologists, and men of science in different parts of *Asia*, will commit their observations to writing, and send them to the Asiatic Society of Calcutta. It will languish, if such communications shall be long intermitted; and it will die away, if they shall entirely cease.”—SIR WM. JONES.

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## LIST OF CONTRIBUTORS.

|                                                                                                                                                        | Page. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| ANNANDALE, NELSON.— <i>Additions to the Collection of Oriental Snakes in the Indian Museum</i> (plate IX).....                                         | 207   |
| BURKILL, I. H. See PRAIN D. and BURKILL I. H.....                                                                                                      |       |
| DRUMMOND, J. R.— <i>On a Scirpus from Beluchistan and certain of its allies</i> .....                                                                  | 137   |
| GAMBLE, JAMES SYKES. See KING, SIR GEORGE, and GAMBLE.                                                                                                 |       |
| HOOPER, D.— <i>Rusat: an ancient Eastern Medicine</i> .....                                                                                            | 176   |
| KING, SIR GEORGE and GAMBLE, JAMES SYKES.— <i>Materials for a Flora of the Malayan Peninsula</i> , No. 15.....                                         | 47    |
| LITTLE, C.— <i>The Cyclone in the Bay of Bengal, between the 13th and 15th November, 1903</i> (Plates II-V).....                                       | 30    |
| ————— <i>The Himalayan summer storm of September 24th, 1903, and the weather immediately subsequent to that date in Northern India</i> (Plate VI)..... | 148   |
| ————— <i>The recent excessive heat in Bengal and its probable cause</i>                                                                                | 1     |
| PRAIN, D. <i>Notes on the Roxburghiaceæ, with a description of a new species of Stemonan</i> .....                                                     | 39    |
| ————— <i>Noviciæ Indicæ XXII.—An undescribed Araliaceous Genus from Upper Burma</i> (Plate I).....                                                     | 23    |
| ————— <i>Noviciæ Indicæ XXI.—An undescribed Indian Musa</i> ..                                                                                         | 21    |
| ————— <i>Noviciæ Indicæ XXIII.—Four Orchids new to the Indian Flora</i> .....                                                                          | 189   |
| ————— <i>Noviciæ Indicæ XXIV.—Some new Indian Plants</i> (Plates VII & VIII).....                                                                      | 192   |
| ————— <i>Some new plants from Eastern Asia</i> .....                                                                                                   | 14    |
| ————— <i>The Asiatic species of Ormosia</i> .....                                                                                                      | 45    |
| —————and BURKILL, I. H.— <i>On Dioscorea birmanica—a new species from Burma and two allied species</i> .....                                           | 182   |
| STEBBING, E. P.— <i>On the Life History and habits of the moth Duomitius leuconotus, Walker, in Calcutta</i> .....                                     | 25    |

### SUPPLEMENT.

|                                                                                                                                                                                                           |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| ANNANDALE, NELSON.— <i>Contributions to Oriental Herpetology I. —The Lizards of the Andamans with the description of a new Gecko and a note on the Reproduced Tail in Ptychozoon homalocephalum</i> ..... | 12 |
| PRAIN, D., and BURKILL, I. H.— <i>On Dioscorea deltoidea, Wall., Dioscorea quinqueloba, Thunb., and their allies</i> .....                                                                                | 1  |
| ROGERS, LEONARD.— <i>Special Report on the prevalence of Fevers in the Dinajpur District</i> .....                                                                                                        | 23 |



# INDEX.

Names of New Genera and Species have an asterisk (\*) prefixed.

*Egle Marmelos*, 184  
*Amacrotropis*, 45  
*Ancistrodon rhodostoma*, 211  
 ANONACEÆ, 192  
 ARAUCIACEÆ, 24  
*Argyria sphaerocephala*, 19  
*Arundo Donax*, 148  
*Azygophleps*, 25  
*Babotrys acuminata*, 198  
*Bauhinia Vahlia*, 181  
*Berberis aristata*, 179, 180, 181  
 „ *asiatica*, 180  
 „ *Lycium*, 180, 181  
 „ *Oetnensis*, 180  
*Bigelovia Kleinii*, 95  
 „ *lasiocarpa*, 95  
 „ *myriantha*, 95  
 „ *Roxburghiana*, 95  
 „ *stricta* 95  
*Bobea glabra* 54  
 „ *Wallichiana*, 56  
*Borreria pusilla*, 95  
*Brassaiopsis palmata*, 24  
*Bungarus bungaroides*, 210  
*Cadamba jasminiflora*, 53  
*Oanthium*, 48, 58  
 „ *confertum*, 58, 60  
 „ *didymum*, 58, 61  
 „ \* *glabrum*, 58, 61  
 „ *griseum*, 62  
 „ *glomerulatum*, 61  
 „ *horridum*, 59, 60  
 \* „ *molle*, 58, 60  
 „ *parvifolium*, 58, 59  
 \* „ *pauciflorum*, 58  
 „ *scandens*, 59  
 „ *umbellatum*, 62  
 „ *zizyphinum*, 59  
*Cassia nodosa*, 29, 30  
 CELASTRINEÆ, 193  
*Celastrus*, 195  
 „ *attenuata*, 198  
 „ *dependens*, 196  
 „ *Hookeri*, 197  
 „ *Listeri*, 197  
 „ *membranifolia*, 197  
 „ *monosperma*, 198  
 „ *multiflora*, 195, 196  
 „ *neglectus*, 198  
 „ *nutans*, 195, 196

*Celastrus ozyphylla*, 198  
 „ *paniculata*, 195, 197  
 „ „ *var. andamanica*, 196  
 „ „ *pubescens*, 196  
 „ *pubescens*, 196  
 „ *racemulosa*, 197  
 „ *sp.* 197  
 „ *stylosa*, 196, 197, 198  
 „ *venulosa*, 197  
*Cephaelis*, 50, 104  
 „ *cuneata*, 105, 106  
 „ *diversifolia*, 103  
 „ *Griffithii*, 105, 106  
 „ *herbacea*, 103  
 \* „ *Ridleyi*, 105, 106  
*Chasalia*, 50, 133  
 „ *curviflora*, 133, 135  
 „ „ *var. linearis*, 134  
 „ *lurida*, 134  
 „ *rostrata*, 133, 134  
 „ *Sanguiana*, 134  
 „ *tetrandra*, 134  
*Cheilothea*, 205  
 „ *hasiana*, 205  
 „ *malayana*, 205  
*Chomelia*, 64  
*Christisonia*, 205  
 „ *Hookeri*, 206  
 „ *Scortechinii*, 205  
*Chrysopetea ornata*, 210  
*Coelospermum*, 47, 49, 50  
 „ *scandens*, 51  
 „ *truncatum*, 51  
*Coffea tetrandra*, 91  
 COLUBRIDÆ, 208  
 COMBRETACEÆ, 204  
*Combretum*, 184  
*Contia angusticeps*, 208  
 CONVULVULACEÆ, 14, 15  
 COSSIDÆ, 25  
*Cossus*, 25  
*Crudia*, 199  
 „ *bantamensis*, 199  
 „ *caudata*, 200  
 „ *Havilandi*, 199  
 „ *Mansoni*, 199  
*Cuncea trifida*, 58  
*Cupia macrophylla*, 68  
 „ *truncata*, 51  
 CYPERACEÆ, 137, 139, 143

- Dioscorea*, 41, 43, 184  
 \* „ *birmanica*, 185, 186, 187  
 „ *fasciculata*, 184  
 „ *oppositifolia*, 41  
 „ *sp.* 186  
 „ *spinosa*, 185  
 „ *yunnanensis*, 186  
*Dipsadomorphus dendrophilus*, 210  
 „ *dightonii*, 210  
 „ *multimaculatus*, 210  
 „ *trigonatus*, 209  
 „ „ var. *melanocephalus*, 209  
*Dipsas dightonii*, 210  
 „ *multimaculata*, 210  
 „ *trigonata*, 209  
*Dandisia horrida*, 60  
*Dryophis xanthozona*, 210  
*Duomitus* 25, 28  
 „ *leuconotus*, 25, 26  
 „ *niger*, 26  
*Echis carinatus*, 209  
*Elsholtzia*, 206  
 „ (*Euselsholtzia*)  
 „ *kachinensis*, 206  
*Enomymus*, 193  
 „ *bullatus*, 194, 195  
 „ *calocarpus*, 193  
 „ *imbriatus*, 195  
 „ *frigidus*, 195  
 „ *glaber*, 194  
 „ *grandiflorus*, 193  
 „ *kachinensis*, 193  
 „ *Lawsonii*, 195  
 „ *macrocarpus*, 193  
 „ *subsulcatus*, 194  
 „ *viburnoides*, 194  
 „ *Wrayi*, 194  
*Eremocossus*, 25  
*Eristocophis macmahonii*, 211  
*Erycibe*, 14  
 „ *albida*, 18  
 „ *albiflora*, 14  
 „ *citriniflora*, 17, 18  
 „ *coriacea*, 17, 18  
 „ *Forbesii*, 15  
 „ *glomerata*, 17, 18  
 „ *griffithii*, 17  
 „ *Henryi*, 15  
 „ *laevigata*, 15  
 „ *leucomyloides*, 16  
 „ *magnifica*, 18  
 „ *paniculata*, 14, 15  
 „ *Princei*, 15  
 „ *sapotacea*, 16  
 „ *subspicata*, 14, 15  
 „ *Wallichii*, 17, 18  
*Euselsholtzia kachinensis*, 206  
*Eulophia*, 190  
 „ *Campbellii*, 190  
*Eumusa Nagensium*, 21  
*Eupyrena glabra*, 54  
*Eurebera*, 64  
*Fimbristylis macroatum*, 140  
*Gardenia rigida*, 59  
*Gardeniopsis*, 48, 63  
 „ *longifolia*, 64  
*Geophila*, 53, 102  
 „ *diversifolia*, 103  
 „ *humifusa*, 102  
 „ *melanocarpa*, 102, 103  
 „ *pulosa*, 102, 103  
 „ *reniformis*, 102, 103  
 \* „ *Scortechianii*, 102, 104  
*Geum*, 200  
 „ *elatum*, 201  
 „ (*Sieversia*) *rotundifolium*, 201  
 „ „ *sikkimense*, 200  
*Gladuolus*, 145  
*Goniothalamus*, 192  
 „ (*Griffithii*), 192  
*Guttaria*, 48, 52  
 „ *Brunonis*, 54  
 „ *Fiulaysoniana*, 54  
 „ *missionis*, 54  
 „ *peduncularis*, 54  
 „ *speciosa*, 52  
*Gymnosperma*, 198  
 „ *acuminata*, 198  
 „ *Curtisii*, 198  
 „ *neglecta*, 196, 198  
 „ *sikkimensis*, 198  
*Gynochthodes*, 49, 91  
 „ *coriacea*, 92  
 „ „ var. 92  
 „ *macrophylla*, 92  
 „ *subanceolata*, 92  
*Hubenaria*, 190  
 „ *diphylla*, 190  
 HEDERÆ, 24  
*Helospora flavescens*, 54  
*Humboldtia*, 200  
 „ *Bourdillonii*, 200  
 „ *decurrens*, 200  
*Hydnophytum*, 50, 101  
 „ *formicarium*, 101  
 „ *montanum*, 102  
*Hyptianthera rhamnoides*, 60  
*Izora*, 48, 70, 83  
 „ *alba*, 80  
 „ *amæna*, 80, 81  
 „ *arborescens*, 82  
 „ *arguta*, 71, 74, 75  
 „ *attenuata*, 134  
 „ *Bandhuca*, 76  
 „ *blanda*, 80  
 „ *Brunonis*, 71, 72  
 „ *canja*, 77  
 „ *coccinea*, 71, 75, 80  
 „ *concinna*, 72, 81  
 „ *congesta*, 71, 76  
 „ *coriacea*, 82  
 „ *crocata*, 80  
 „ *densa*, 80

- Isora diversifolia**, 72, 83  
 „ *elliptica*, 82  
 „ *fulgens*, 71, 76, 78, 79  
 „ *grandifolia*, 69, 71, 82  
 „ „ *var. arborescens*, 82  
 „ „ *coriacea*, 82  
 „ „ *gigantea*, 82  
 „ „ *Kurziana*, 71, 83  
 „ *grandiflora*, 76  
 „ *Griffithii*, 76  
 „ *humilis*, 71, 79  
 „ *incarnata*, 76, 80  
 „ *Kingstoni*, 71, 73, 74  
 „ *Kurzeana*, 83  
 „ *Lobelia*, 71, 76, 78, 79  
 „ „ *var. angustifolia*, 79  
 „ *longifolia*, 69  
 „ *macrophylla*, 69  
 „ *macrostemon*, 82, 83  
 „ *merguensis*, 71, 72, 73  
 „ „ *var. curtisii*, 73  
 „ *multibracteata*, 71, 74  
 „ *naucleiflora*, 85  
 „ *nigricans*, 75  
 „ „ *var. arguta*, 75  
 „ *obovata*, 76  
 „ *opaca*, 71, 77  
 „ *paniculata*, 84  
 „ *Pavetta*, 84  
 „ *pendula*, 71, 77, 78, 83  
 „ *propinqua*, 76  
 „ *rosea*, 80  
 „ *Scortechinii*, 71, 80  
 „ *stricta*, 71, 80  
 „ *tomentosa var. glabrescens*, 85  
 „ *undulata*, 71, 76  
**Jasminum hirsutum**, 53  
**Knoxia**, 48  
 „ *corymbosa*, 57  
 „ *erecta*, 57  
 „ *mollis*, 57  
 „ *stricta*, 57  
 „ *sumatrensis*, 57  
 „ *teres*, 57  
 „ *umbellata*, 57

## LABIATÆ, 20, 206

**Lasianthus**, 50, 106, 113, 121, 122

- \* „ *angustifolius*, 110, 126  
 „ *appressus*, 108, 121, 122  
 „ *attenuatus*, 108, 121  
 „ *bracteatus*, 113  
 „ *chinensis*, 109, 124  
 „ *constrictus*, 108, 109, 117  
 „ *coriaceus*, 109, 123  
 „ *coronatus*, 108, 120  
 „ *crinitus*, 114  
 „ *Curtisii*, 110, 128  
 „ *cyanocarpus*, 107, 113, 115  
 „ „ *var. subsessilis*, 118  
 „ *densifolius*, 108, 122  
 „ „ *var. calycina*, 122  
 „ „ *latifolia*, 122

- Lasianthus ellipticus**, 108, 118  
 „ „ *ferrugineus*, 110, 130  
 „ „ *filiformis*, 111, 131  
 „ „ *var. bracteata*, 131  
 „ „ *flavicans*, 108, 116  
 „ „ *var. subglabra*, 116  
 „ „ *gracilis*, 111, 132  
 „ „ *Griffithii*, 107, 111  
 „ „ *var. latibracteata*, 112  
 „ „ *Harceyanus*, 110, 129  
 „ „ *var. longifolia*, 130  
 „ „ *inaequalis*, 107, 114, 120  
 „ „ *Kurzii*, 108, 119, 120  
 „ „ *hevicaulis*, 113  
 „ „ *longifolius*, 108, 116  
 „ „ *lucidus*, 111, 129, 132  
 „ „ *Mainguii*, 111, 126, 132  
 „ „ *malaccensis*, 109, 124  
 „ „ *montanus*, 110, 127  
 „ „ *nervosus*, 110, 129  
 „ „ *oblongus*, 110, 127  
 „ „ *oculus-Cati*, 113  
 „ „ *perakensis*, 119, 126  
 „ „ *pergamaceus*, 109, 123  
 „ „ *pilosus*, 107, 110, 115  
 „ „ *var. angustifolius*, 109, 115  
 „ „ „ *glabra*, 115  
 „ „ *pseudo-lucidus*, 110, 128  
 „ „ *pterospermus*, 109, 125  
 „ „ *rhinocerotis*, 107, 114  
 „ „ *Ridleyi*, 107, 115  
 „ „ *robustus*, 109, 123  
 „ „ *Roxburghii*, 113  
 „ „ *scabridus*, 107, 111  
 „ „ *scalariformis*, 111, 131  
 „ „ *setosus*, 115  
 „ „ *singaporensis*, 108, 117  
 „ „ *stipularis*, 107, 112  
 „ „ *sub-inaequalis*, 108, 115, 120  
 „ „ *subspicatus*, 108, 118  
 „ „ *sylvestris*, 127  
 „ „ *tomentosus*, 110, 130  
 „ „ *Wallichii*, 122  
 „ „ *Wightianus*, 109, 125  
 „ „ *Wrayi*, 118, 119

**Laslostoma formicarium**, 102

## LAYIA, 45

**Lecanorchis**, 190

- „ *japonica*, 191  
 „ *javanica*, 191  
 „ *malaccensis*, 191

## LEGUMINOSÆ, 199

**Lettsomia**, 19

- „ *sphærocephala*, 19

**Lycodon striatus**, 208**Lytorrhynchus Maynardi**, 208

- „ *ridgewayi*, 208

**Macrodisca**, 45**Malacochæte**, 139, 141, 142, 143, 144, 145

- „ *littoralis*, 140, 144  
 „ *pectinata*, 139, 143, 144

- MALAXIDÆ, 189**  
*Melanophidium punctatum*, 208  
*Memecylon pauciflorum*, 61  
**Mephitidea**, 122  
     *cyanocarpa*, 113  
     *rhinocerotis*, 114  
     *rhinozerotis*, 113  
     *sp.* 100, 117  
     *stipularis*, 113  
     *venosu*, 125  
**Mesona**, 20  
     *chinensis*, 21  
     *prunelloides*, 21  
     *sp. nov.* 21  
**Mesoptera**, 48, 63  
     *Muingayi*, 63  
**Microstylis**, 189  
     *Cardoni*, 189, 190  
     *khassiana*, 190  
     *Wallichii*, 190  
**MONOTROPÆ, 205**  
**Morinda**, 49, 86, 88, 89  
     *bracteata*, 87  
     *citrifolia*, 86  
     *var. elliptica*, 87  
     *lacunosa*, 86, 87  
     *Padavoni*, 88  
     *rigida*, 86, 87  
     *scandens*, 88  
     *speciosa*, 90  
     *tetrandra*, 88  
     *umbellata*, 86, 88  
     *var. Ridleyi*, 88  
     *var. Scortechinii*, 88  
**Musa**, 21  
     *glauca*, 22  
     *Nagensium*, 22  
     *paradisiaca*, 22  
     *seminifera*,  
         *var. pruinosa*, 22.  
     *(Eumusa) Nagensium*, 21  
*Nelitris Jambosella*, 54  
**NOTTIEÆ, 190**  
*Nictanthes hirsuta*, 53  
**Nosema**, 20, 21  
     *capitatum*, 20, 21  
     *var. javanica*, 21  
     *prunelloides*, 21  
     *tonkinense*, 21  
**ORCHIDACEÆ, 189**  
**Ormosia**, 45  
     *gracilis*, 45  
     *robusta*, 45  
     *striata*, 45, 46  
     *tavoyana*, 46  
     *travancorica*, 45, 46  
     *yunnanensis*, 45, 46  
**OBOBANCHACEÆ, 205**  
**Pæderia**, 50, 95  
     *barbulata*, 98  
     *fatida*, 96, 97, 98  
     *ternata*, 100  
*Pæderia tetrandra*, 92  
     *tomentosa*, 96  
     *var. glabra*, 97, 98  
     *verticellata*, 96, 97  
**Palisota**, 145  
**PANACEÆ, 24**  
**Pavetta**, 49, 83  
     *alba*, 84  
     *aristata*, 66  
     *Bandhuca*, 76  
     *Brunonis*, 72  
     *canescens*, 85  
     *cerberæfolia*, 68  
     *coccinea*, 76  
     *congesta*, 76  
     *Finlaysoniana*, 84  
     *graciliflora*, 84  
     *humilis*, 84, 85  
     *incarnata*, 76  
     *indica*, 84  
     *var. glabra*, 84  
     *var. polyantha*, 84  
     *Lobbii*, 78  
     *longifolia*, 69  
     *mollis*, 85  
     *naucleiflora*, 84, 85  
     *opaca*, 78  
     *petiolaris*, 84  
     *polyantha*, 84  
     *Rothiana*, 84  
     *salicifolia*, 79  
     *tomentosa*, 85  
     *velutina*, 85  
     *villosa*, 85  
     *weberæfolia*, 67, 68  
**Phragmataecia**, 25  
**Plectronia didyma**, 62  
     *glabra*, 61  
     *horrida*, 59  
     *parvifolia*, 59  
     *pauciflora*, 59  
**Polyozus latifolia**, 135  
**Polyphragmon flavescens**, 54  
     *sessile*, 55  
**Potentilla**, 201  
     *purpurea*, 201  
     *Sibbaldi*, 201  
     *sikkimensis*, 201  
**Prismatomeris**, 49, 90  
     *albidiflora*, 90, 91  
     *subsessilis*, 90, 91  
**Pseudizora**, 64  
     *truncata*, 51  
**Pseudocerastes persicus**, 211  
**Psychotria**, 47, 50, 92, 133, 134  
     *ambigua*, 134  
     *curvifolia*, 134  
     *herbacea*, 103  
     *lurida*, 134  
     *ophioryloides*, 134  
     *rostrata*, 135  
     *tetrandra*, 134

*Psydrax dicoccos*, 62  
*Pterolepis*, 141, 143  
     " *scirpoides*, 141, 143  
*Pyrus*, 203  
     " *foliolosa*, 204  
     " *granulosa*, 204  
     " *Griffithii*, 204  
     " *Khasiana*, 204  
     " (*Sorbus*) *Kurzii*, 203  
*Rennellia*, 49, 89  
     \* " *paniculata*, 89  
     " *speciosa*, 89  
     " " *var. elongata*, 90  
*Rosa*, 201  
     " *bracteata*, 202  
     " *Collettii*, 203  
     " *gigantea*, 203  
     " *indica*, 203  
     " *involuta*, 201, 202, 203  
     " " *var. glabra*, 202  
     " " " *parvifolia*, 202  
     " *Lyellii*, 201, 202, 203  
     " *microcarpa*, 203  
     " *moschata*, 202  
     " *palustris*, 202  
     " *pubescens*, 202  
*ROSACEAE*, 200  
*Rosburghia*, 42  
     " *gloriosa*, 41  
     " *gloriosoides*, 41, 42  
     " " *var. minor*, 42  
     " *japonica*, 40  
     " *javanica*, 42  
     " *moluccana*, 41  
     " *sessilifolia*, 40  
     " *Stemona*, 41  
     " *viridiflora*, 41  
*ROXBURGHIAEAE*, 39  
*RUBIAEAE*, 47, 59, 61, 81, 92, 113, 134  
*Saccopetalum*, 192  
     " *longiflorum*, 192  
*Saprosma*, 50, 98  
     \* " *glomerulatum*, 98  
     " " *var. angustifolia*, 99  
     " *Ridleyi*, 98, 100  
     \* " *Scortechinii*, 98, 99  
     " *ternatum*, 98, 100  
*SCIRPEAE*, 139  
*Scirpus*, 137, 138, 139, 141, 142, 143, 144, 145, 147  
     " *arabicus*, 143  
     " *balearicus*, 140  
     " *Brayii*, 141  
     " *campestroides*, 139, 140  
     " *Desprauzii*, 141  
     " *eriphorum*, 145  
     " *fimbriatus*, 143  
     " *fimbriatus*, 138, 139, 140, 141, 143, 144  
     " *grossus*, 145  
     " *Jatora*, 141

*Scirpus* *Kysoor*, 145, 147  
     " *lacustris*, 138, 141  
     " *litoralis*, 137, 138, 140, 141, 142, 143, 144, 145, 146, 147  
     " *maritimus*, 138, 148  
     " *Meyenii*, 141, 142  
     " *mucronatus*, 140  
     " *pectinatus*, 139, 140, 141, 142, 143, 144, 145, 146, 147  
     " *Philippi*, 141  
     " *plumosus*, 139, 141, 142, 144, 146, 147  
     " *pterolepis*, 141, 143  
     " *riparius*, 143  
     " *subulatus*, 137, 140, 141, 142, 143, 144, 146  
     " *triqueter*, 138, 143, 144  
     " *validus*, 142  
     \* " *Wardianus*, 147  
*Sieversia*, 201  
     " *elatum*, 201  
     " *rotundifolium*, 201  
     " *sikkimensis*, 200  
*Silybura madurensis*, 208  
     " *myhendra*, 208  
*Siphonodon*, 198  
     " *celastrineus*, 198  
*Sorbus Kurzii*, 2-3  
*Spermacoce*, 49, 93  
     " *angustifolia*, 95  
     " *articularis*, 94  
     " *avana*, 94  
     " *czserta*, 57  
     " *filina*, 95  
     " *Gardneri*, 95  
     " *hirta*, 94  
     " *hispida*, 93  
     " *lasiocarpa*, 95  
     " *longicaulis*, 94, 95  
     " *pusilla*, 95  
     " *ramosissima*, 94  
     " *scaberrima*, 93, 94  
     " *scabra*, 94  
     " *stricta*, 93, 95  
     " *sumatrensis*, 57  
     " *teres*, 57  
     " *triandra*, 95  
     " *tubularis*, 94  
*Stemona*, 39, 40, 44  
     " *Burkillii*, 40, 43, 44  
     " *Curtisii*, 40, 41, 42, 44  
     " *gloriosoides*, 41  
     " *Griffithiana*, 39, 40, 42, 43, 44  
     " *japonica*, 40, 44  
     " *javanica*, 40, 42, 44  
     " *Kurzii*, 40, 42, 44  
     " *minor*, 40, 42, 44  
     " *moluccana*, 40, 41, 44  
     " *sessilifolia*, 40, 44  
     \* " *sp. nov.*, 42  
     \* " *tuberosa*, 40, 41, 42, 44  
*Sterculia*, 192



*Sterculia coccinea*, 193  
 „ *Kingii*, 192  
 „ *lavis*, 193  
 „ *Roxburghii*, 193  
**STERCULIACEÆ**, 192  
*Stichoneuron*, 39, 43, 44  
 „ *membranaceum*, 43, 44  
*Stoliczkaia bornensis*, 209  
 „ *Khasiensis*, 209  
**STRIATÆ**, 45, 46  
*Stylocoryna*, 64  
 „ *penangensis*, 68  
 „ *truncata*, 51  
 „ *Wetara*, 66, 67, 68  
**SYLVATICÆ**, 145  
*Taphrometopum lineolatum*, 210  
*Tarennia*, 64  
*Terminalia*, 204  
 „ *burmanica*, 204  
 „ *Cutappa*, 205  
*Timonius*, 48, 53, 54  
 „ *Finlaysonian*, 54  
 „ *flavescens*, 54  
 „ *Jambosella*, 53, 56  
 „ „ var. *Finlaysonian*, 54  
 \* „ *laxus*, 53, 56  
 \* „ *malaccensis*, 53, 56  
 \* „ *Rumphii*, 53, 55, 57  
 \* „ *Wrayi*, 53, 54  
*Trachischium fuscum*, 208  
*Trevesia palmata*, 24  
*Tribrachya*, 89  
*Triosteum hirsutum*, 118  
*Trisciadia truncata*, 51  
*Tupidanthus*, 24

**TYPHLOPIDÆ**, 207  
*Typhlops acutus*, 208  
 „ *diardii*, 207  
*Unona*, 192  
 „ *præcox*, 192  
**UROPELTIDÆ**, 208  
**VANDEÆ**, 190  
*Vangueria? atroviridis*, 61  
 „ *dicocca*, 62  
 „ *spinosa*, 62  
**VIPERIDÆ**, 211  
*Webera*, 48, 64  
 \* „ *Curtisii*, 65, 67  
 „ *cymosa*, 62  
 „ *grandifolia*, 65, 68  
 „ *longifolia*, 65, 68, 69  
 „ *macrophylla*, 68  
 „ *odorata*, 65, 68  
 „ „ var. *pubescens*, 68  
 „ *Ridleyi*, 65, 66  
 „ *stellulata*, 65  
 „ *truncata*, 51  
 „ *Wallichii*, 65, 66, 67  
 \* „ *Wrayi*, 65, 69  
 \* „ *Yappii*, 65, 70  
 \* *Woodburnii*, 23  
 „ *penduliflora*, 23  
*Xylophis stenohynchus*, 208  
*Zamenis atriceps*, 209  
 „ *diadema*, 208  
 „ *Karelinii*, 209  
 „ *rhodorachis*, 209  
*Zeuzera*, 25  
 „ *coffea*, 26  
*Zwaardekronia lurida*, 134

## SUPPLEMENT.

**AGAMIDÆ**, 13, 19  
*Anopheles*, 48, 50, 51, 53  
 „ *Barbistrois*, 49, 50  
 „ *Culicifacies*, 49  
 „ *Fuliginosus*, 49, 50, 52  
 „ *Listoni*, 41, 49, 50, 51, 52, 53  
 „ *Rosei*, 49, 50, 51, 52  
 „ *Sinensis*, 49, 50  
*Aphaniotis fusca*, 19  
*Oalotes andamanensis*, 13, 18  
 „ *cristatellus*, 18, 19  
 „ *jubatus*, 18, 19  
 „ *liolepis*, 18  
 „ *mystaceus*, 13, 18  
 „ *ophiomachus*, 20  
 „ *versicolor*, 12, 13, 18, 20  
*Dibamus novæ-guinææ*, 20  
**Dioscorea**, 1, 2, 3, 6  
 „ *acerifolia*, 2, 7  
 „ „ var. *Rosthornii*, 8  
 „ *Ba'atas*, 11

*Dioscorea birmanica*, 2  
 „ *Buengeri*, 11  
 „ „ var. *enneaneura*, 11  
 „ *deltoides*, 2, 4, 5, 6, 7  
 „ *deltoides*, 6  
 „ *enneaneura*, 2, 11  
 „ *japonica*, 11  
 „ *nipponica*, 2, 8, 9  
 \* „ *panthiwa*, 2, 6  
 \* „ *Prazeri*, 2, 4, 5  
 „ *quinqueloba*, 2, 7, 8, 9  
 „ *sativa*, 10  
 „ *septemloba*, 2, 8  
 \* „ *sikkimensis*, 2, 3, 4, 5  
 „ *tenurpes*, 2, 10, 11  
 \* „ *Yokusai*, 2, 9, 10, 11  
*Draco*, 20  
*Gecko monarchus*, 15  
 „ *stentor*, 12, 14, 15  
 „ *verticillatus*, 12, 14, 15  
**GECKONIDÆ**, 12

# Index.

vii

- Gehyra mutilata*, 12, 14, 15, 19  
*Gonatodes*, 13, 14, 17  
 „ *affinis*, 13  
 \* „ *andersonii*, 12, 13, 16, 20, 21  
 „ *gracilis*, 21  
 „ *humel*, 21  
 „ *kundianus*, 13, 15, 16, 21  
 „ *kendallii*, 13  
 „ *marmoratus*, 21  
 „ *wicksii*, 21  
*Gonyoccephalus borneensis*, 19  
 „ *humel*, 18  
 „ *subcristatus*, 13, 18, 20  
*Gymnodactylus*, 14  
 „ *seæ*, 15  
 „ *thasienensis*, 13  
 „ *lateralis*, 15  
 „ *marmoratus*, 13, 14, 15, 21  
 „ *peguensis*, 15  
 „ *pulchellus*, 15  
 „ *rabidus*, 12, 13, 14, 20  
 „ *variegatus*, 15  
*Hemidactylus bowringii*, 15  
 „ *brookii*, 15  
 „ *laeviviridis*, 15  
 „ *fronatus*, 12, 14, 15  
*Hemidactylus garnotzi*, 15  
 „ *leschenaultii*, 15  
 „ *platyurus*, 15  
 „ *subtriendroides*, 15  
*Lepidodactylus ceylonensis*, 15  
 „ *lugubris*, 12, 14, 15  
*Lygosoma macrotympanum*, 13, 19  
 „ *maculatum*, 13, 19  
 „ *olivaceum*, 13, 19  
*Mabuia multifasciata*, 13, 19  
 „ *tylleri*, 13, 19  
*Mus musculus*, 17  
*Phelsuma*, 14  
 „ *andamanense*, 12, 14, 20  
 „ *cepedianum*, 14  
*Phyllodactylus burmanicus*, 15  
*Ptychozoon homalocephalum*, 12, 15,  
 16, 22  
 „ *horsfieldii*, 16, 22  
*Rhytidoceros narcondami*, 20  
 SCINCIDÆ, 13, 19  
*Spathoscabototes mutilatus*, 15  
*Stenophora*, 2  
*Tiaris humel*, 18  
 VARANIDÆ, 13  
*Varanus salcator*, 13, 19











